

The Iron Age

A Review of the Hardware, Iron and Metal Trades.

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The Manufacture of Pressed Fuel.

The utilization of inferior grades of fuel plays so important a part in the welfare of manufacturing industries abroad—notably in Belgium and France—that a brief account of the apparatus used in making pressed fuel will be of interest. In this country the most serious and, as we are told, now successful efforts in this direction have been made by E. F. Loiseau, of Philadelphia.

In endeavoring to use the enormous quantity of anthracite slack annually wasted, he has been forced to contend with conditions differing largely from those observed abroad; and he has, therefore, with much persistence and judgment, pursued an independent path. In Belgium and France the raw material is the culm of bituminous coal, which was first used for making pressed fuel in Belgium in the year 1852. Since then it has grown in that country until considerably more than half a million of tons is produced, while France turns out more than double that quantity, and English, Spanish and Italian factories considerably swell the total.

The fine coal invariably produced in mining in considerable quantities is unfit for use on the grate without further preparation, and the purpose of the process and machinery to be described is to convert it into a shape in which it will be available for the uses to which the ordinary sizes are used. After being washed, if necessary, the fine material is mixed with suitable cement to conglomerate the coal dust, and then pressed into shape of cylindrical or square blocks, called "briquettes." Numerous substances have been proposed as a cement, among the most recent and promising being Irish moss, which is converted into a gelatinous substance by boiling or by addition of acids. The most general substance used, however, is tar, either in the crude state or in the shape of "dry pitch," prepared by separating the volatile substances by heating to a temperature of 570 degrees. The former method is used chiefly in France, while the latter has become very popular in Belgium. When the dry pitch is used it is simply mixed with the coal dust, and the mass is rendered plastic in a mixing cylinder by the application of superheated steam. With tar, of course, a much lower temperature will suffice. The machinery employed varies quite considerably, both as regards the fundamental principles involved and as concerns the details.

We show in the accompanying engraving a machine invented by the well-known French engineer, M. Evrard, which has been largely used for a number of years, both in France and in Belgium. The principal parts and their functions are the following: K is a cylindrical mold, into which the mass of tar and coal enters through an opening in the top. A piston, P, moves forward and backward in this cylinder, the mold being filled as soon as it is withdrawn. By means of a lid and a spring acting upon it the exit opening of the briquette may be altered so that the pressure can be varied—a device well adapted to regulating irregularities in the mixture and the charging of the mass. There are 16 of these cylindrical molds attached to the immovable disk S. The mold pistons P are actuated through the agency of the eccentric R. The entire operation is carried out in the following manner: The coal dust is lifted by the elevator, from the buckets of which it is dropped into cylinder B, where liquid tar is mixed with it. The cylinder B has a double casing, between which steam is conducted for the sake of keeping the whole mass hot. The worm in the cylinder conveys the material to the mixer C, in which the ingredients are thor-

oughly stirred together. The mass rests upon a rotating platform, D, from which it is taken at intervals by the scraper G, adjustable by means of the screw X. It falls through four tubes, H, upon another rotating cylinder, from which it is distributed to the 16 molds described in detail in the above. When the briquettes are turned out of the mold they strike against L, causing the platform Z to drop, so that the briquette breaks

Wood Preservation.

We would direct the attention of those interested to the following circular, feeling confident that the assistance asked for will be gladly accorded by those in a position to contribute to furthering our knowledge of the preservation of wood:

The undersigned, a committee of the

2. Preserving ingredients injected.
3. Quantity injected per cubic foot or tie.
4. Mode of application, process, time employed, degree of heat, pressure, vacuum, &c.
5. Subsequent use and exposure of timber (bridges, buildings or track).
6. Result of preparation and comparison with life of unprepared timber.

A Southern Rolling Mill.

The Birmingham Rolling Mill Company, W. B. Caldwell, Jr., president, have erected a rolling mill at Birmingham, Ala., which, as will be seen from the following description, for which we are indebted to Mr. A. J. Moxham, superintendent, has been designed in every respect to meet the conditions of the locality, and may be considered a very good example of the type best adapted for that section of the country, as well as for the South in general.

The mill consists of a forge with 12 double puddling furnaces, a bar mill and a small mill. Though only medium in size, its appointments are superior, the object having been to make the mill as perfect as a judicious expenditure could render it. From the first it has been remembered that it is a Southern mill, and no expense which could add to the comfort and convenience of the men has been spared. The puddling furnaces are covered by a roof of 60 feet span and 21 feet high in the clear. It is 210 feet long. There are 28 feet between the furnaces. The stacks are of unusual height, 56 feet, and in order to prevent radiation are double lined until they have passed clear of the roof. Every furnace is provided with water doors and stationary water shields. Over-head telegraphs are used to convey the iron to the squeezer. A shed roof (kept up 16 feet in the clear to secure proper ventilation) covers the ash-pits and protects the men from the sun and the weather while they are cleaning their grates. All materials are delivered to the furnaces by means of an elevated track, so that there is no intermediate handling. The standings of the furnaces are nowhere more than 20 feet from the open, and there is nothing to prevent the free circulation of air throughout the whole building. At right angles to this building is the building covering the forge train, of 50 feet span, 21 feet high and 210 feet long. The train is 18 inches in diameter, driven by its own engine, having a 30-inch diameter cylinder and 48-inch stroke. It is connected directly to it and is speeded to 50 revolutions. The engine, a horizontal one, is of heavy and substantial design, and was designed especially for its work. The squeezer is large and heavy and will squeeze 250-pound blooms. It is the intention to bring out heats of 1000 pounds in four balls, thus securing long lengths of muck bar and reducing the percentage of crop ends. The roughing and finishing rolls are in separate housings and both are three-high. The muck bar is to be weighed and handled mechanically in drafts of 6000 pounds, by means of overhead hoisting apparatus.

Parallel to this building is the bar mill building, 50 feet span, 21 feet high and 300 feet long. This building contains the bar mill and boilers. The bar mill has a 16-inch train, driven by a 30 x 36-inch horizontal engine, directly connected, and is provided with a three-high finishing train for all sizes. The large amount of hoops, tire sizes and small tee and tram rails will permit of its being used. The roughing trains are three-high. Special provision is made for the automatic handling of small rails, in the hope that the locality will permit of a specialty being made of

This special and any general information on the subject is respectfully solicited.

Replies can be mailed to the chairman of the committee, B. M. Harrod, 122 Common street, New Orleans, La.; or to the members of the committee, G. Bouscaren, 82 West Third street, Cincinnati, O.; E. R. Andrews, 1 Warren street, New York city, N. Y.; E. W. Bowditch, 60 Devonshire street, Boston, Mass.; Col. Geo. H. Mendell, U. S. Engineers, San Francisco, Cal.; J. W. Putnam, P. O. Box 2734, New Orleans, La.

this class of produce. It is hoped that by the large use of three-high rolls longer lengths can be secured than by the ordinary methods, and that their use will be favorable both for an increase of product and a decrease of cropping. The boilers contained in this building are made of steel 5/16ths thick, all material having been tested before use. Nothing less than 60,000 nor more than 65,000 pounds tensile strain per square inch was used. They are suspended at such points as will secure the utmost freedom for

THE EVRARD MACHINE FOR THE MANUFACTURE OF PRESSED FUEL.

off and drops upon the table M below. The openings U behind the press molds are intended to carry off the water expelled by the pressure.

It is stated that the product turned out by this machinery approaches in hardness that of solid coal. The production is given at 450 pounds per horse-power per hour, while Habets states that in Belgium it has not exceeded, according to his observation, more than 250 pounds. Probably local circumstances considerably affect the result.

American Society of Civil Engineers, appointed to report upon the preservation of timber, earnestly solicit information concerning past experience in the impregnation and preservation of that material.

Particulars of failures in this country, and if possible, reasons therefor, are especially desired. Also, information on the following points in each of the processes which may have been used:

1. Kind of timber operated on (green or dry), age, dimensions, &c.

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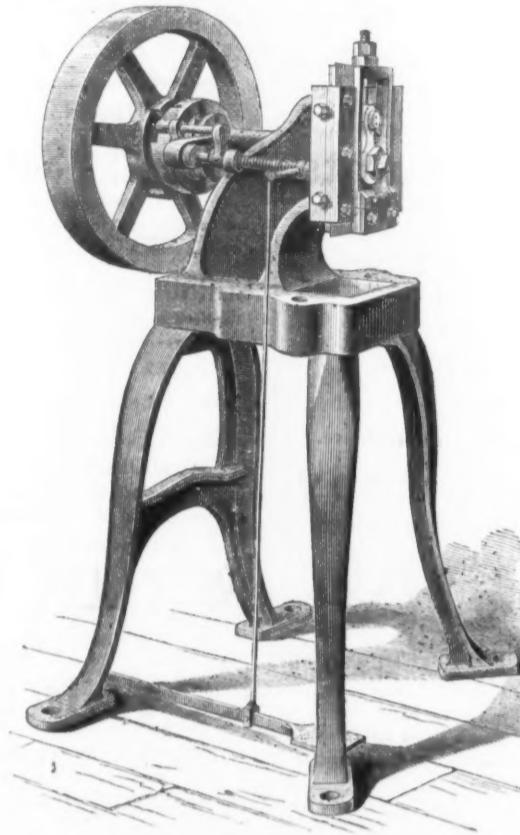
expansion and contraction without strain. All holes in these boilers were drilled and the longitudinal seams double riveted. Great care was exercised to provide ample blow-off area, and the most improved and reliable safety valves and steam gauges were selected. Low water alarms are added for each battery. The setting of the boilers is such that any one department of the mill can be run with its appropriate supply of steam without the rest of the mill, and the smaller machinery, shears, crusher, &c., have their independent steam supply. All pipes and flanges are of wrought iron with drilled holes, and expansion and contraction in them is provided for by means of copper goosenecks. Another building, parallel to the bar-mill building, contains the 8-inch train, driven by a horizontal 22 x 30-inch engine. This engine is also intended to run a cotton-tie mill. In this train, as in the others, special provision has been made in the turning of the rolls, arrangement of the train, &c. for long lengths of iron. Ample warehouse room for the finished product is provided in this building, and the cars are run directly into it for shipping purposes.

For the handling of scrap, ore, &c., a special building has been put up, containing shears, crushers, pulverizers, &c. The scrap is carried directly to the shears on the cars,

liked Many of count of their convenience. foot power. The presses are sold with one to the other intent to be worked by slackening up bolt, can be made from wheel and putting up the plates, merely place. When this is done the fly used for foot power the same as a pein its press of the same size. It is capable doing the same amount of work. The treadle is not at all in the way when the press is used for power, as it is jointed and can be turned back against the back bar of the frame. This is a great convenience, as the operator is not altogether dependent upon steam power and can use his press at any time by merely taking off the balance wheel and putting on the pendulum.

Drawing Canal Boats Through Locks.

It is known to few not directly engaged in canal navigation that the canal officials of New York have been devoting considerable attention of late to the subject of rapid transit through the locks, and that some interesting and highly successful experiments have been made. How necessary it is that some plan should be devised to reduce the detention at the locks to the minimum will be seen from a



A NEW PUNCHING PRESS.—NO. 1 POWER PRESS.

and as it is sheared it drops into hopper trucks which stand upon a track 6 feet lower than the shears. The sheared scrap is then taken to the scrap furnace by the mill locomotive and dumped directly on to the standing. The ore is also handled with economy, being thrown directly into the mouth of the crusher from the cars and delivered into the pulverizer therefrom. It is also distributed by means of trucks, like the scrap.

Along both sides of the track, which runs through the pig metal yard, will be placed breakers. The pig metal, as unloaded, will be thrown on these and broken, thus saving this labor afterward. To avoid constant handling of material a locomotive has been purchased for it, and over a mile of rails has been laid. More than 1200 yards of masonry has been used in the foundation. With exception of lathe, crusher and pulverizer, the whole mill was built in Louisville; the boilers by the Jos. Mitchell boiler yard, and all the mechanism by Ainslie & Cochrane. The first drawing was completed about the 1st January. All the patterns, even to the engines, had to be made. Notwithstanding this, it is probable that the forge has been started, and by the middle of July the whole mill will be in operation.

A New Punching Press.

The Peerless Punch and Shear Company, 52 Dey street, New York, have just completed a new power press for punching, similar in design to their No. 1 foot press, of which we published illustrations in August of last year. In the form of the frame the presses are alike. The pendulum, however, is replaced by a balance wheel for a belt.

The press has an automatic attachment, by which it can be kept punching continuously, or, by throwing this out of gear, it will make single strokes as the foot is placed upon the treadle. The punch holder is made in the form of a clamp. The shank of the punch is round, and fits the two half-round grooves which are formed in the clamp. Setting the punch is very quickly done. It is only necessary to loosen a couple of set screws in front, slip the shank of the punch into place and then tighten up the set screws. A wrench is then put upon a square head, formed upon the end of the crank-shaft, and the carrier turned down till the punch enters the female portion of the punch. The set screws are then tightened and the work is done. This makes a great saving of time. The working portions of the press, like the crank-shaft, connecting rod, &c., are all made of steel.

One of these presses, although weighing only 500 pounds, will punch a $\frac{1}{2}$ -inch hole in $\frac{1}{4}$ -inch iron, or 1-inch hole in $\frac{1}{4}$ -inch iron, and will cut a blank $6\frac{1}{2}$ inches square from No. 14 iron. If used as a shear it will cut iron 2 by $\frac{1}{4}$ inches. The fly or pulley wheel is 22 inches in diameter and weighs 125 pounds. The design is very neat and at the same time strong. These presses have been quite successful, and are much

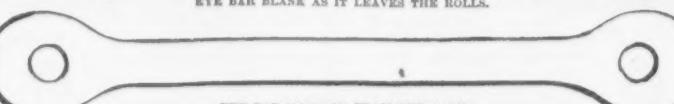
few facts given by the Buffalo Commercial Advertiser:

There are 72 locks on the line of the Erie Canal. Loaded boats are detained at each of these locks from 10 to 20 minutes, according to the luck each has in making a good entry into the chamber, and the skill of the lock-tenders. If we make the average 15 minutes, which is not wide of the mark, it will be seen that the delay at the locks during each trip is 72 quarter hours, or three-quarters of a day. There are about 4000 boats navigating the canals, and they make at least seven trips each a season. It is plain, therefore, that an immense amount of time is lost at the locks each year.

In discussing this subject Mr. Porter, Engineer for the Middle Division, expressed the opinion that he could perfect machinery that would greatly expedite the passage of boats, and finally received authority from the department to make a trial. The Port Byron lock, which is the worst on the entire line of the Erie, was selected, and last week the machinery was put in position and got ready for work.

The plan is to utilize the waste water, so that the working of the machinery will be attended with comparatively little expense and no loss of water. Between each pair of locks is a flume, through which the water passes from one level to that below. In this flume an improved water wheel is placed, which connects by means of heavy gearing with a shaft on the surface, running from the head of one lock to that of the other. On both ends of this shaft, about 6 feet from the lock, are friction wheels, by which the power applied to the tow line is regulated by an attendant. When the bow of a boat appears at the lower end of the lock a line is attached to her and passed around a drum pulley on the outer end of the shaft. The water is then turned on and pressure applied to the friction wheel, gently at first until the boat begins to move, and then stronger until the vessel is drawn into the lock at as great a rate of speed as she could be towed by horses on the open canal.

The machinery has been in operation now for some time and the results are highly encouraging. It will pull a loaded boat into the lock in $2\frac{1}{2}$ minutes, and after the lock tenders become more accustomed to operating it, this time will probably be cut down. As yet it is only used to draw boats into the lock, but it is Mr. Porter's intention to adjust it so that it can be used to as good advantage in pulling boats out of the lock as in drawing them in. Another excellent feature of Mr. Porter's invention is that it is comparatively inexpensive. The entire cost of fitting up the Port Byron lock with this power was about \$800. The canal authorities should lose no time in providing the Jordan lock and those at Syracuse with this machinery. These five are the only locks on the entire line of the Erie in which loaded boats going East are lifted. These should be furnished with power at once, and the other single locks as rapidly as possible. A small amount of money could not be expended for a better purpose than this on the canals.

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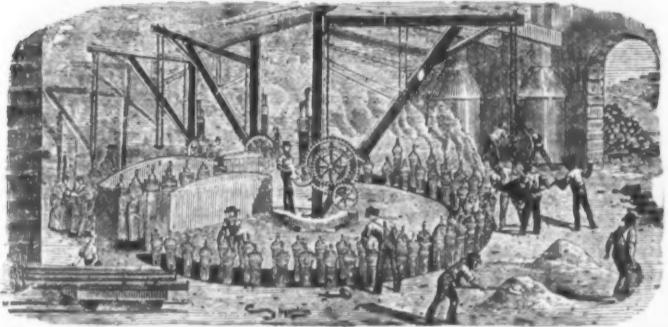
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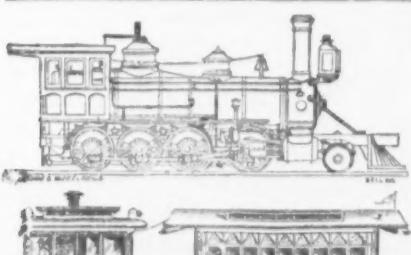
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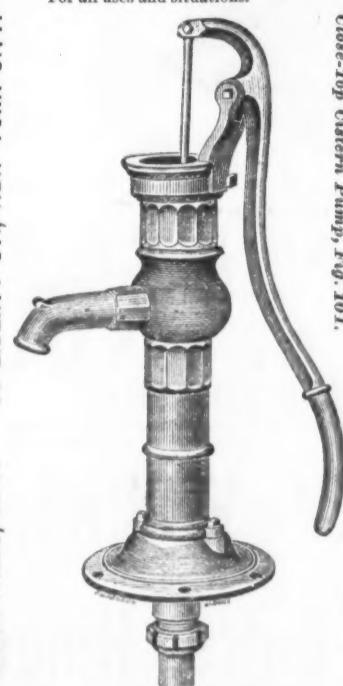
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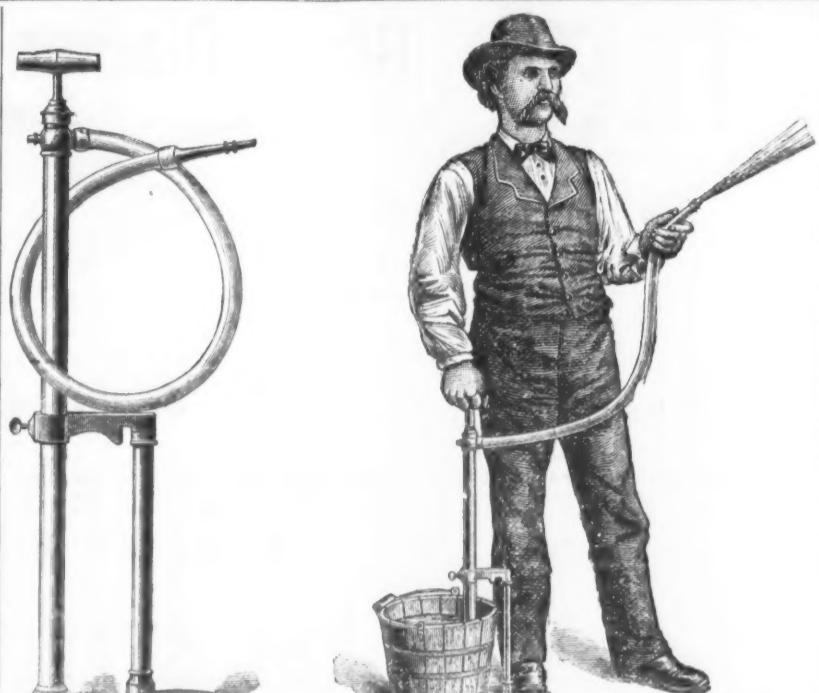
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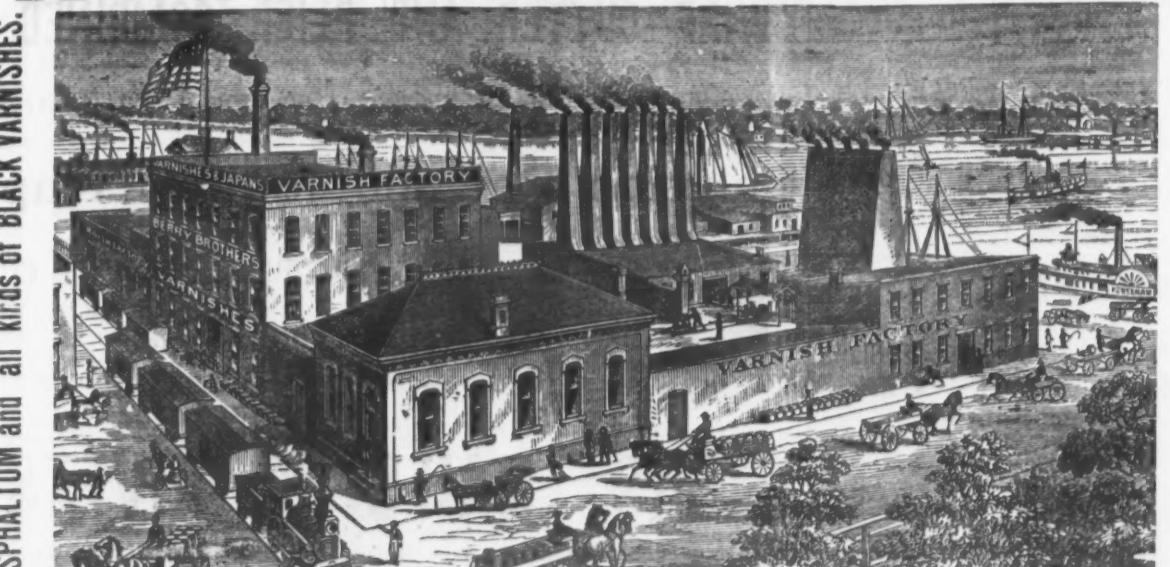
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two file-like bones at the tail. From this it will be seen that the *teredo* cuts timber for food and not as a burrow. Mr. Putnam also noticed that, on coming in contact with timber not suitable, it retracts one-fourth, more or less, of its length, and abandoning its old cell, cuts a branch in another direction, always taking care to build a large dam or wall across the entrance to the abandoned cell. Three different branches have been cut by the same animal.

Early in March a few animals may be found which have just entered the timber. As the season progresses the number which have just entered increases until the first of October. From that time the number decreases rapidly until the last of November. Through December and January none are found. Having entered the timber they grow in length about 2 inches a month. In February and March the largest animals are found. During April the large animals all disappear, and only the smaller ones up to 4 or 6 inches in length remain. Clear, fresh water does not appear to be necessarily destructive to them, as the water of the bays along the coast has been fresh enough for good drinking purposes by reason of heavy and continual rains for two or three months, and yet they appeared healthy and vigorous. It has been supposed that the *teredo* leaves the timber in search of other fields. This probably comes from the sudden disappearance of large numbers in the spring. As they are attached to the shell so firmly as to exclude the entrance of water, they can no longer leave it than can the oyster its shell. Having fulfilled their mission they die, and from their soft, boneless construction, they rapidly decompose and are washed away, leaving only their shell and cutters.

The rapid destruction of timber in exposed situations by decay, and the ravages of land and marine animals, have led people in every age to devise measures to prevent such waste of time and means, and render their works more enduring. Perhaps the only preparation that has stood the test is a hydro-carbon, a product of the destructive distillation of coal. About the year 1835 experiments were begun with this product, usually called creosote or dead oil. It is rich in phenols, but its greatest ingredient is naphthaline. In the scramble for work, and from a mistaken idea that cheapness of construction is economy, as well as by errors of judgment, much defective work has been done. In some cases such work has given partial satisfaction by increased length of service, while in others the additional outlay has been entirely thrown away, bringing dispute upon all classes of creosoted timber. Certain rules have been adopted by engineers in the selection and use of timber, which, while valuable in the use of untreated timber, should be set aside in the use of creosoted material. For instance, in ordinary timber-work for exposed situations, compact, solid heart timber is usually specified, and the cutting and framing, more or less, done on the ground.

Such timber, if treated, will prove difficult to saturate. The soft and unripened growth, or sap-wood, more readily absorbs oil, and becomes the more durable. The more porous and destructible classes of timber now considered nearly worthless, will, when creosoted, become the most valuable. Fir, swamp ash, and old field pine, when treated, will outlast the best white oak, yellow pine, or cedar uncreosoted. In ordinary use the heart of yellow pine will more than six times outlast the sap-wood. Mr. Putnam states that he has at West Pascagoula pieces of yellow pine, the sap-wood of which was partially saturated with creosote oil in October and November, 1872, and which since then have been exposed to contact with the earth and unfavorable climatic conditions. Such parts as received oil are as perfectly sound as when cut from the stump, while the untreated sap, and a considerable part of the heart, are entirely rotten. Timber which, untreated, would decay in one season, will remain in closely packed piles or on the ground, in the most unfavorable conditions, perfectly sound for years. As far as practicable all cutting and framing of timber should be done before treatment, except in open, porous timber, which has been thoroughly saturated. Holes for bolts may be made if they are fitted so as to exclude water. Ordinary building timber will not be thoroughly saturated, and too much care cannot be taken in this respect.

From what he has seen of creosoting, he considers timber which has been saturated with coal-tar oil practically indestructible, and as durable as iron or stone. There is a property in the oil which prevents fermentation and the change which we call decay. How much oil per cubic foot of timber is necessary to produce this result has not been determined. If a small quantity—say 5 to 10 pounds per cubic foot—could be evenly distributed through the stick, it might be sufficient. But as the oil first comes in contact with the outside of the timber the central part will receive none until the outside has become thoroughly saturated. No method is known by which a given quantity of oil less than the total amount which would be absorbed by timber can be so distributed as to reach every part. The amount which can be forced into timber varies from 8 to 40 pounds per cubic foot. This last amount can only be forced into very light and porous timber. The unequal results from creosoting timber probably come from the unequal distribution of the oil.

As a defense against the ravages of the *teredo nebulis*, or ship worm, coal-tar oil is invulnerable. It is deadly to cold-blooded animals. A small quantity stirred in a pool where there are fish will kill them. Mr. Putnam has placed pieces of treated timber in water where the worms were abundant, and, though rapidly entering other timber, they would not touch that which had been creosoted. He has taken pieces of timber, and saturating a part of each one, has left the remainder free from oil. The *teredo* would enter and destroy the untreated parts and perish for want of food, leaving the treated parts perfectly good. Wherever it came in contact with the creosoted wood it turned away.

The trustees for the bondholders of the New Orleans and Mobile Railroad had to come so thoroughly convinced of the value

of coal-tar oil as a preventive of decay in timber—which takes place rapidly in the long, warm seasons of that latitude, and of the ravages of the *teredo*, which is abundant and destructive to the numerous and long bridges which cross the bays and inlets along their line—that they decided in the winter of 1874-5 to creosote the piles and timber used in bridge construction. As no works could be found in this country treating timber thoroughly enough to be satisfactory, it was thought advisable to build machinery and do the work on a plan different from any then in operation. Accordingly, works were erected at West Pascagoula, Miss., at a cost of about \$50,000, and all the bridges and water-ways on the road have been constructed of creosoted timber, except the long spans of trusses, which are of iron. The work has been eminently satisfactory. Pile piers have been built which bid fair to outlast their iron superstructure.

These works contain two reservoir tanks for storing oil, placed in the ground; two tanks for treating timber, 6 feet diameter inside by 100 feet long; a large tubular condenser and pump for supplying it with water, a large vacuum pump, an oil pump, a powerful force pump, a hoisting engine for handling timber, a pair of boilers capable of furnishing the required steam and a superheater. These are all connected by the requisite pipes and valves. Each treating tank contains nearly 5000 feet of 1-inch pipe arranged in coils, through which superheated steam is passed for seasoning timber, and also iron rails upon which cars loaded with timber are moved in and out. Both heads of the treating tanks are movable. At suitable distances are transfer derricks for loading and unloading timber. A large number of piles, 90 and 95 feet long, have been handled with them. In work, piles are cleaned of dirt and bark, butted and sharpened, and timber cut and framed, ready to be put in position. It is then loaded on iron cars built for the purpose and hauled into the tank. Steam is then turned in through a perforated pipe extending along the inside at the bottom of the tank. This is continued until the timber has become heated through. The vapor is then condensed and a partial vacuum produced. Superheated steam is passed continually through the coils of pipe to vaporize the sap and moisture contained in the timber, and as fast as vaporized it is condensed. A partial vacuum being maintained, the moisture vaporizes at a low temperature, and the seasoning proceeds rapidly. When the timber has become properly seasoned, the tank is filled with oil, and a pressure applied by means of the pressure pump of from 150 to 200 pounds per square inch. This pressure is maintained until the pressure gauge remains constant, showing that the timber will absorb no more oil. The oil is then drawn off, the load drawn out, and another load, which has in the meanwhile been prepared, drawn in and the process repeated. The consumption of oil by this process has usually been from 12 to 18 pounds per cubic foot, or from one and one-fourth gallons to two gallons per cubic foot. Over three gallons per cubic foot have been injected in some loads. The main features of this plan of treatment are the extraction of the sap or moisture in the timber to prevent fermentation, and also to provide room for oil. Timber can no more be steamed dry than it could be seasoned by boiling. The timber, being cooler than steam, would condense and absorb it, thus accumulating moisture. Water cannot be drawn out of timber by a vacuum alone. If timber retained its moisture by atmospheric pressure, then, by removing such pressure, it would flow out. But moisture retained in timber by capillary attraction, which is left in full force when atmospheric pressure is removed. The timber is steamed to heat it through as being the simplest method of conveying heat; the steam is then condensed and pumped out, the air producing a partial vacuum. It is well known that water vaporizes in a vacuum at a low temperature. While under pressure the degree of heat at which it vaporizes rises to correspond with the pressure applied. By maintaining a partial vacuum it is possible to vaporize the moisture rapidly, and at a temperature which will not injure the timber. When the pressure is removed by condensation, the heat absorbed by the timber during the steaming expands the moisture by vaporizing and drives it out. Superheated steam is passed through the coils of 1-inch pipe in the treating tank to maintain the temperature and assist in vaporizing the moisture, and as fast as vaporized, the moisture is drawn away by the condenser. This process is continued until the timber has become satisfactorily seasoned, when the tank is filled with oil and a pressure of from 150 to 200 pounds per square inch is applied until the timber will absorb no more oil.

It is now nearly four years since the construction of bridges with creosoted timbers was commenced, and during that time not a fire has caught in the new work from passing trains, while on bridges constructed of uncreosoted timber watchmen were a continual necessity.

It is customary for the glass manufacturers—especially the window-glass and green-bottle manufacturer—to shut down during the hot months. Indeed, the workmen in the bottle-glass houses refuse positively to work, even at extra wages. This year the window glass houses will close for three months from July 1, partly to reduce production and partly to make repairs, and the bottle-glass houses for two months. The flat-glass manufacturers, at their meeting last month in Philadelphia, appointed a committee to endeavor to secure a general stoppage for one month in the three months beginning July 1. All but two factories have agreed to this. It seems that some of the evils that affect the iron trade are experienced in the glass business. During the advance, French and Belgian manufacturers shipped large quantities of window glass to this country and overstocked the market. The price has been reduced, and now the oversupply must be exhausted. The flat-glass trade is suffering from overtrading. The jobbers overstocked themselves, and manufacturers now must wait till the stock in the hands of the jobbers is worked off. The green-bottle and fruit-jar trade is the

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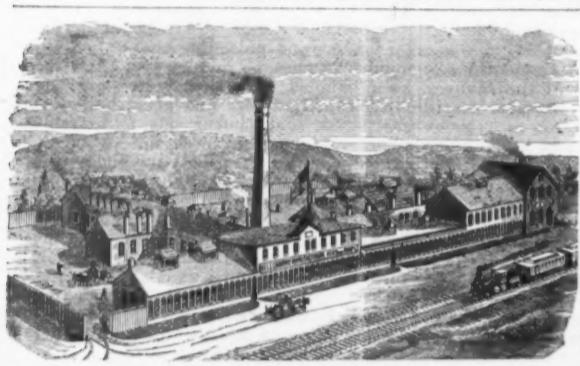
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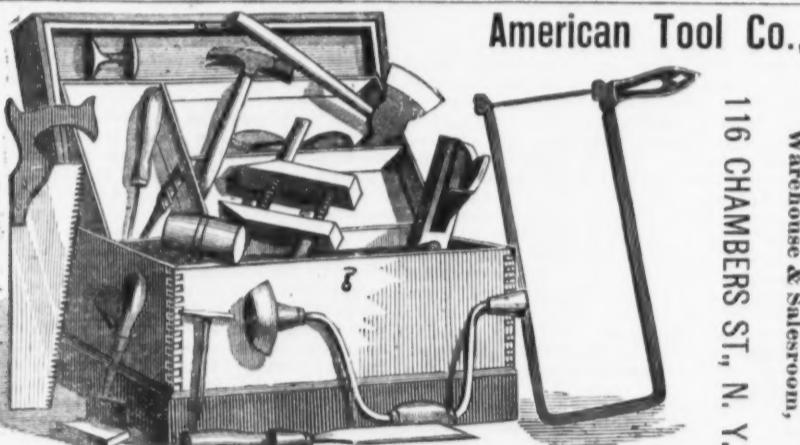
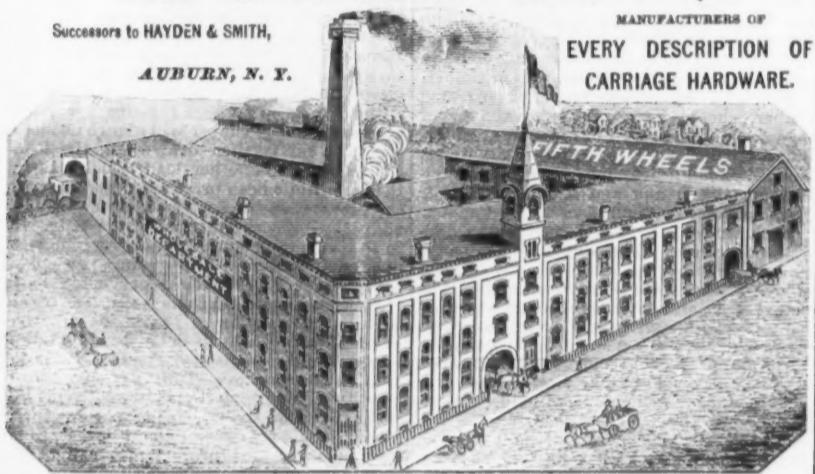
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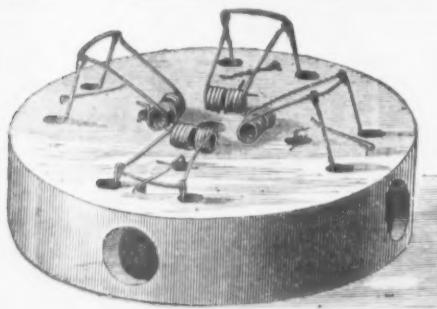


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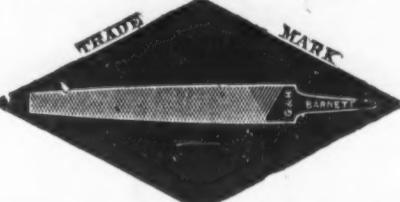
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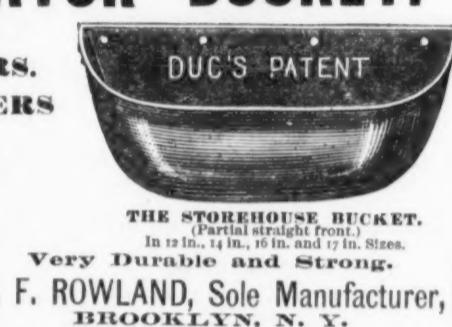
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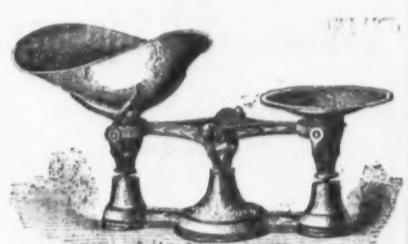
MILL BUCKET.
In 3½ in. to 10 in.Very Durable and Strong.
T. F. ROWLAND, Sole Manufacturer,
BROOKLYN, N. Y.

AMERICAN BOLT CO., Lowell, Mass., MANUFACTURERS OF Bolts, Nuts, Washers, Chain Links, Car Bolts, Bridge Bolts, Lag Screws, &c.

Hoisting Machinery
MANUFACTURED BY
CRANE BROTHERS MFG. CO.,
Chicago.

SCALES

Of all Descriptions,



For Grocers' & Family Use

Manufactured by

JOHN CHATILLON & SONS,
89, 91, 93 Cliff Street, New York.

Send for Illustrated Price List.

E. PHILLIPS & SONS,
Manufacturers,
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TACKS
F. R. EMMONS,
Agent,
55 Warren St.,
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THE ANSONIA CORRUGATED STOVE PLATFORM, With Patented O. G. Border.



THE ANSONIA STOVE REST.



This Cut is the Actual Size of 2-inch.

ANSONIA BRASS AND COPPER CO., 19 Cliff St., New York.

RICHARD DUDGEON,

No. 24 Columbia Street, New York,

Maker and Patentee of the Improved

Hydraulic Jacks

AND

Punches.

Roller Tube Expanders and Direct Acting Steam Hammers.
Communications by letter will receive prompt attention.

Jacks for pressing on Car Wheels or Crank Pins made to order.



EVERY
PUTNAM NAIL
Is drawn down to a point from the rod, thus:

It is the only Hot Forged and Hammer Pointed Horse Shoe Nail, made by machinery, in the World.

Some other manufacturers claim to make a hot forged Nail, but you will observe on all such a sheared edge near the point.

THE PUTNAM NAIL CO., Boston.

P. O. Address, Neponset, Mass., U. S. A.

only one that is in a good condition. The manufacturers are full of orders for beer bottles and fruit jars, and prices are fully 100 per cent. above last year. They would like to run, but the union will not permit it.

An Improvement in Axles.

The accompanying illustrations represent Dr. J. H. McLean's improved axles for carriages and wheel vehicles of all kinds. Fig. 1 is a top rim of the axle and Fig. 2 a section through the arm of the holes. This axle has two peculiar features. The first is a slot along the whole top and a similar one at the bottom, as is shown in Fig. 1. The second is that at the ends of these slots there are holes passing clean through the axle. At first sight it might seem that this construction was not likely in any way to alter the action, unless to cause it to cut a little faster on account of a reduced bearing surface. Practice, however, shows that the reverse is the case. The greater portion of the friction and wear in use in ordinary axles arises from two causes—the presence of sand and dirt in the box, and the pressing out of the oil from between the bearing surfaces. No dust caps, however well fitted,

deteriorating the quality of the plate so that buyers could not dispose of them except at second-quality prices. After the makers saw the mistake they had made and abandoned the new process for the old one, it was some time before the brand regained the position it had lost. Pontynwyd (excuse spelling, as my early education in Welsh orthography was neglected) was at one time one of the worst brands of charcoal tin made; the last lot of the same brand I saw was of first-rate quality and could be classified with "Allaways" grade. The brand of coke tin called "Lantwit" should be changed to "Chameleon," it changes its color so often. These three are makers' brands, and I could extend the list indefinitely.

But all this discussion will amount to nothing if it does not result in finding a way out of the difficulty of consumers being obliged to accept and use an article inferior in quality to that which they order and want. How can the evils complained of be remedied? The impractical idea of abolishing the practice of using and selling private brands—which, as the statement you have published shows, outnumber makers' brands four to one—will not, for the reasons I have advanced, accomplish the desired ob-



An Improvement in Axles.—Fig. 1.—Top View of Axle, showing Slot and Holes for Lubrication and Removal of Dirt.

are able to keep out the dirt, and from experience we think it safe to say that with ordinary wagons the squeezing of the oil from the bearing is constant. No matter how carefully the box may be adjusted, the constant motion seems to grind the oil or grease down and then force it out in a very short time.

Dr. McLean's improvement divides the surface into two portions, and instead of making a whole revolution necessary before any portion of the box can get a fresh supply of oil, he arranges the slot in such a manner that just as the point of greatest pressure is reached all the pressure is taken off and a new supply of oil given. At the same time the second edge of the slot answers another and very valuable purpose in wiping off and arresting the particles of grit which would otherwise be carried continually around the axle, cutting at each revolution and perhaps bedding themselves in the metal so as to become constant cutting tools. This action is very marked in light carriages when the dirt and sand comes up through the holes shown in Fig. 1, in long worm-like rolls. The slot gives the bearing surfaces a rest once in each revolution.

It is a well-known fact among machinists that a crank-pin will run cool with many times the pressure upon it which would cause an ordinary car journal to heat. Thus with steel pins, engines have been run with as much as 1200 pounds per square inch upon them and worked well. A car bearing, however, is not safe with 350 pounds per square inch. This difference is largely due to the fact that the crank-pin is rested, as it

is, and some other method must be adopted. The best plan, when a buyer is in doubt about the quality of tin plates, is to follow the example of bakers, who, when they want to buy flour, do not depend upon the marks or words on the barrel, but judge what the quality is by sampling and testing the contents. This method, of course, can only be adopted by parties whose places of business are accessible to the warehouses of the dealers. For parties residing at a distance, accustomed to order their supplies by mail, a little care exercised when making out and wording their orders will be all that is required. With my knowledge of the quality of tin plates I would adopt the following formula for making out my orders, if circumstances obliged me to obtain my supplies by mail:

1. If I wanted the very best and highest-priced charcoal tin that is made for the luxury of having an article used by a few people, I would order M. F., Pontymister, Dafen, or fully equal.

2. For deep stamping, K. C. B., or fully equal.

3. For planishing or making the very best quality of tinware, P. S. & Co., Melyn, E. C. C., V. S. St. George, Pontartawie, Osier-Bed, Trengon, or fully equal.

4. For an excellent quality of tinware, Gwendreath, Allaways, Parkend, R. G. Machen, L. P. L., Comfelin, or fully equal.

5. For common work, where the tin is not put to a severe test, Dean, Vole, Abercarne, or fully equal.

6. For the very best quality coke tin, equal to many brands of charcoal, A. E., A. Z., or fully equal.

7. For an excellent quality coke tin, Landore, Llanfair, Osborne (diamond), Yspytty, or fully equal.

8. For a good quality coke tin to make cheap tinware, such as fruit, lard, paint and other packing cans, C. F., Abertawe, Celyn, Gelly, Glais, Cynon, B. V., I. B., Carne, or fully equal.

9. For common coke tin, Y., B.C., Lantwit, or fully equal.

10. To fill an order for the man who says his roofs are not laid of as good stuff as they formerly were, and who is willing to pay the price for the very best charcoal terne, M. F., or fully equal.

11. To make an excellent roof, STP, Gwendreath, Allaways, Parkend, Dean or Cambrian terne, or fully equal.

12. For second-quality roofing, A. Z., or Abercarne terne, or fully equal.

13. To fill an order for the party who don't care what the quality is, so long as the roof is put on for a low price, B. C., or Budda terne, or worse.

Now, if a dealer fills an order written as above, by substituting another brand for the one called for, a warranty that the quality is the same is implied, the transaction partakes of the nature of a contract, and he becomes liable, legally and morally, for whatever loss the buyer may sustain, if it can be established beyond question that the substituted brand is inferior to the known quality of the plate ordered. If the buyer can prove that the plate is not fully equal to either of those mentioned in his order, two courses are open to him; he can hold the plates subject to the order of the seller, or if he can use them for a purpose that allows an inferior quality, he can make a claim for the difference in price. The buyer, however, must be certain the inferiority is actual and not imaginary, because the seller must have some protection against the tendency of some people to find fault and indulge their whims regardless of the rights of others. The dealer or importer does not suffer any loss by paying such a claim, provided the quality is not up to the grade he supposed it was, for the reason that he can make a reclamation on the parties of whom he purchased the plates, manufacturers or whoever they may be. When these claims are reasonable, and are made to cover the actual and not fanciful loss sustained, no honorable firm will refuse to allow them. Suppose such a claim is refused, what then? There is only one course to pursue—put a black mark against the name of the firm, and refuse further dealings with them.

A committee appointed in 1876 and presided over by M. Dumas, have reported to the French Chamber of Deputies in favor of granting the first Volta prize of 50,000 francs to Prof. Graham Bell of telephone fame, and the second prize of 20,000 francs to M. Gramme the well-known inventor of the dynamo-electric machine bearing his name. The first one to receive this distinction was Ruhmkorff.

Cutlery.

FRIEDMANN & LAUTERJUNG,

Manufacturers of

PEN AND POCKET CUTLERY,
Solid Steel Scissors, Shears, Razors, &c.Sole proprietors of the renowned full concave
“ELECTRIC RAZORS.”And the “ELECTRIC SHEARS,” Nickel Plated
Bows.

Agents for the BENGAL RAZORS.

AMERICAN TABLE CUTLERY, BUTCHER KNIVES, &c.
91 Chambers and 73 Reade Sts., N. Y. 423 N. Fifth St., ST. LOUIS, MO.

MERIDEN CUTLERY COMPANY.

THE “PATENT IVORY” HANDLE TABLE KNIFE.

The oldest manufacturers of Table Cutlery in America. Exclusive makers of the CELLULOID HANDLE for Table Cutlery. A most beautiful and perfect substitute for Ivory. Also makers of all kinds of TABLE, BUTCHER AND HUNTING KNIVES. Illustrated catalogues with prices sent to the trade on application. SALESROOM, No. 49 Chambers St., N. Y. Address all communications to West Meriden, Conn.

AARON BURKINSHAW,
Manufacturer of Pen and Pocket Cutlery, Pepperell, Mass.

My Blades are forged by hand from the best Cast Steel, and warranted. To me was awarded the Gold Medal of the Conn. State Agricultural Society.

The Celebrated VICTOR Cast Shear
SOLD HARDWARE & NOTIONS DEALERS EVERY-
WHERE Special Attention given to orders for export
MADE IN U.S.A.
Manufactured only by THE KENZ HARDWARE CO.,
BRIDGEPORT, CONNECTICUT.Fine Gray Iron Castings.
Fine Plain and Ornamental Metal Patterns made
to order at our new foundry, Knowleton St., E. D.
AddressTHE RENZ HARDWARE CO.,
Bridgeport, Conn.JOHN WILSON'S CELEBRATED
TRADE MARK.
BUTCHERS' KNIVES,
BUTCHERS' STEELS,
AND
SHOE KNIVES.GRANTED A.D. 1766 BY THE
CORPORATION OF CUTLERS OF SHEFFIELD
AND PROTECTED BY ACT OF PARLIAMENTREGISTERED ALSO AT
WASHINGTON, U. S. & ACCORDING TO ACT OF
CONGRESSALSO AT LEIPZIG, IN
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WORKS—SYCAMORE ST., NEWCASTLE UPON TYNE, ENGLAND. Established 1750

HUNTER'S ROTARY FLOUR AND MEAL SIFTERS.
Mixer, Scoop, Measure, Weigher, Egg Beater, Rice Washer, Tomato, Pumpkin, Starch, Wine and Fruit Strainer.

The greatest combination known, and pronounced by press and public the only first-class Sifter in the world. Made better, better stock, sifts much faster, and does more work than any other Sifters. Made in two sizes: No. 1, 10 lbs. No. 2, 5 lbs. Liberal discount to the trade. Please mention this paper, and send for illustrated Price List.

J. M. HUNTER & CO., Sole Manufacturers and Owners,

38 W. Fourth St., Cincinnati, Ohio.



BUCK BROTHERS, Millbury, Mass.

The most complete assortment in the U. S. of
Shank, Socket Firmer and Socket Framing Chisels,
PLANE IRONS.

CAUTION.—Buyers should be on their guard and not have inferior goods palmed on them by unprincipled persons, who represent them as our make. Our tools are stamped “BUCK BROTHERS,” and our labels have on our trade-mark, also “Riverlin Works.”

MALLEABLE CASTINGS.
SMALL MALLEABLES A SPECIALTY.

Correspondence solicited.

CARRIAGE HARDWAREIVES, WOODRUFF & CO.,
Manufacturers,
MOUNT CARMEL, CONN.

Send for Catalogue.

BANDS,
SHAFT TIPS,
POLE TIPS,
WHIFF TIPS,
HANDLES,
HINGES,
LOCKS,
CLIP CHOPPS,
CLAMPS,
FOOT RAILS,
CLIP YOKES,
FELLOE PLATES,
BUCKLES,
CENTERS,
&c., &c.**G. W. Bradley's Edge Tools.**Ring Bush Hooks,
Ax Eye Bush Hooks,
Socket Bush Hooks,
Watt's Ship Carpenter's Tools,
Carpenter's Drawing Knives,
Coopers' and Turpentine Tools.

FOR SALE BY

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Cutlery.

ALFRED H. HILDICK,
12 Warren St., N. Y.,
Importer of CHAINS, ANVILS, VISES, &c.
Agency of HILL BROTHERS & CO., WALSALL, ENGLAND
GENERAL HARDWARE MERCHANTS,
And of BALL'S PAT. SOLID STEEL SHEEP SHEARS.

These shears are unsurpassed for cheapness, durability and utility. They are made of one solid piece of steel from point to point, and cannot be broken in use either in the bow or at the junction of the shank and blade. Samples can be seen at above address, or sample lots furnished.

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Joseph Rodgers & Sons'
(LIMITED)CELEBRATED CUTLERY,
No. 82 Chambers Street, New York.
F. & W. CLATWORTHY, Agents.

The demand for Joseph Rodgers & Sons' productions having considerably increased, they have, in order to meet it, greatly extended their Manufacturing Premises and Steam power.

To distinguish Articles of Joseph Rodgers & Sons' Manufacture, please to see that they bear their Corporate Mark.

P. O. Box 3902.

ESTABLISHED 1836.

Alfred Field & Co.,
COMMISSION MERCHANTS,
New York, Birmingham, Sheffield, Liverpool.Guns and Pocket Cutlery,
SPECIALTIES.

Headquarters for

ELEY'S BROS. GOODS, WRIGHT'S ANVILS,
WILSON'S BUTCHER KNIVES, &c.
WORSTENHOLM'S POCKET CUTLERY AND RAZORS,
BUTCHER'S FILES, TOOLS AND RAZORS,
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GREAVES' SHEEP SHEARS,
CHESTERMAN'S TAPE,
GERMAN COIL AND HALTERS and other CHAINS,
BRADES TROWELS AND HOES,
CANASTOTA KNIFE CO.'S POCKET KNIVES,
Etc., Etc., Etc., Etc.

All sorts of Hardware and Merchandise for import and export purchased on commission.

ROBERT SORBY & SONS,

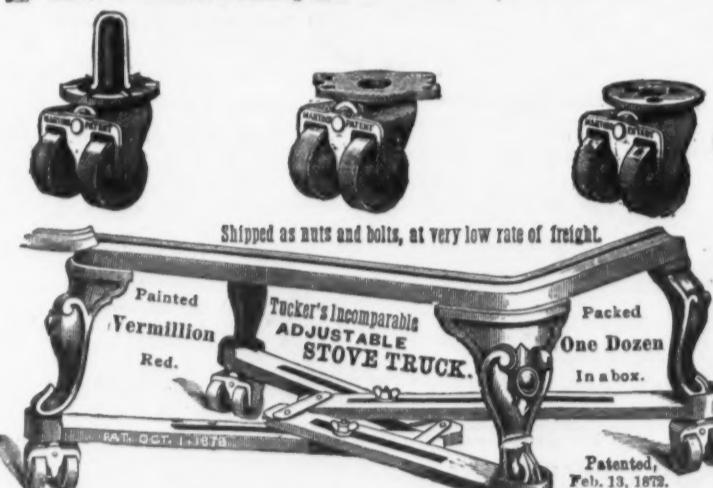
SHEFFIELD,

MANUFACTURERS OF THE CELEBRATED
Kangaroo Sheep Shears,The best CORPORATE MARK
Shears
made.
Every
Shears
Guaranteed.ALFRED FIELD & CO.,
93 Chambers St., — NEW YORK,
SOLE AGENTS.

Send for price list and terms.

PHœNIX CASTOR CO.,
INDIANAPOLIS, IND.

Send for Illustrated Catalogue.

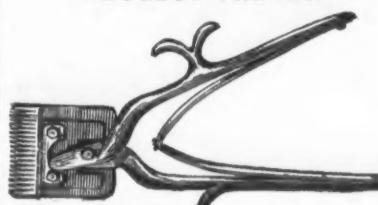


Eight thousand sold the first year.

TUCKER & DORSEY, Mfrs.,
Indianapolis, Ind.LIGHTNING STUMP PULLER,
M. E. Bunker & Co.,
Manufacturers,
Indianapolis, Ind.Send for
Illustrated
Circulars
and
Prices.Observe what absolute
power is gained in
pulling up on
one chain and down
on the other.
Pullers 1½ inch
on short bite.
A puller 1½ inches
in diameter at pleasure
and a stamp gives
any size thus add-
ing to speed as
desired.Can be applied to
any implement,
either with or
without tongue.NO. 2
M. E. Bunker & Co.,
Indianapolis, Ind.
Makers.Send for Price and
Illustrated Circular.

The best selling implement in America.

Cutlery.

French Clippers
PEUGEOT FRERES.

Barber's Clipper.

We are sole agents for these Clippers. All orders should be addressed to us to obtain lowest prices.

McCoy & Sanders,
132 Duane St., New York.

Silver Medal, 1878—Paris.

J. R. SPENCER & SON,
Albion Steel Works, Sheffield,
MANUFACTURERS OF
FILES
AND
STEEL,
Table Knives, Razors, Shovels, &c., &c.,
of every description.

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J. SPENCER
SHEFFIELD
Granted 1749.ROME IRON WORKS,
Manufacturers ofBrass, Gilding Metal, Copper and German Silver
(In Sheets, Rods, Tubing or Wire),
COPPER & BRASS RIVETS
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A. G. COES
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Established in 1839.



A. G. COES & CO.

WORCESTER,
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L. & A. G. Coes,

Manufacturers of

THE GENUINE

COES

Screw

Wrenches.

PATENTED,

May 9, 1871.

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The backstrain when the wrench is used is borne by the bar—not by the handle.

The strongest Wrench made, and the only successful Re-enforced Bar.

None genuine unless stamped

A. G. COES & CO.,

Our Agents, GRAHAM & HAINES, 113 Chambers St., New York, carry a full line of our goods, and will be pleased to serve you at factory prices.

CLOTHES WRINGERS.

T. J. ALEXANDER, Manager,
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Established 1837.



Manufacturers of Patent Scandinavian or Jail Locks. Brass Pad Locks for Railroads and Switches. Also Patent Stationary R. R. Car Door Locks. Patent Piano and Sewing Machine Locks.

141 to 145 Railroad Avenue, NEWARK, N. J.

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Far exceeds any that has ever been made; occupying but little space; useful and ornamental. A box of Lemons can be squeezed in Twenty Minutes, breaking all the cells of the lemon and extracting all the juice. There has never been a Lemon Squeezer made that can do what this one can.

ROBERT ONDERDONK, Sole Manufacturer,

405 Grand St., New York.

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Hardware Novelties, Glass Cutters, &c.

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Measuring Tapes

Of Cotton, Linen & Steel.

For ALL PURPOSES.

351 to 353 Classon Ave., Brooklyn, N. Y.

CHAS. E. LITTLE,

59 Fulton St., N. Y.

Solid Cast-Steel Pump Augers

For Boring Pump Logs and Pump

Tubing, with all necessary fittings. Agency for

Harness, Wood-Working Machinery

and Lathes.

Light, Strong
and
Simple.A perfect Double Tree
A perfect Equalizer
A perfect StretcherSend for Price and
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Make its acquaintance by sample order in time for spring trade.

Butchers' Cleavers,
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Axes and Hatchets,
Grub Hoes and Mattocks,
Mill Picks,
Box Chisels and Scrapers,

FOR SALE BY

MARTIN DOSCHER, Agent, 85 Chambers Street, N. Y.

The best selling implement in America.

Send its acquaintance by sample order in time for spring trade.

The best selling implement in America.

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The best selling implement in America.

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THE WM. ROGERS MFG. CO., Hartford, Conn., Manufacturers of CUTLERY AND SILVER PLATED TABLE WARE.



W.M. ROGERS,
Senior Member and Manager of ROGERS BROTHERS.
On Knives.



F. WILLSON ROGERS,
Son of the late Wm. Rogers.
On Spoons.



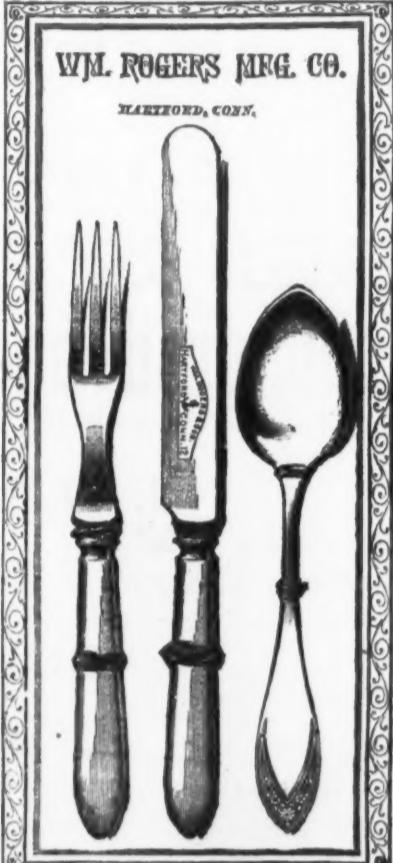
Our SPOONS are guaranteed to STRIP
12 dwts. of Silver per Dozen.
All goods are put up ONE DOZEN IN A BOX.
All our KNIVES are put up in the latest
and most attractive style, with guarantee
card in every box.

OUR GOODS ARE PLATED 20 PER CENT. ABOVE STANDARD PLATE.
THE ABOVE GUARANTEE CARD IS CIRCULATED WITH ALL GENUINE ROGERS GOODS.

REGAL.



Pat. Jan. 20, 1880.
Same price as "OLIVE."



Same price as
"OLIVE."

NEW YORK.

DEPOT, 100 CHAMBERS ST.,

HALL, ELTON & CO.,
Electro Plated Ware, German Silver and Britannia Spoons.



THE "EASTLAKE." (Patented.)

Factories, Wallingford, Conn.

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FORKS, SPOONS, Etc.,
Manufactured from Cast Steel, Plated with Nickel and Silver.
WALLACE BROTHERS, Wallingford, Conn.

HOLMES, BOOTH & HAYDENS,

MANUFACTURERS OF

Finest Quality Silver-Plated Spoons, Forks, Knives, &c.

" JAPANESE "
PATENTED.



" JAPANESE "
PATENTED.

NOTICE.—We guarantee the base of our Spoons, Forks, &c., to be full 18 per cent. Nickel Silver, and extra heavily plated with pure Silver. Our goods are all hand burnished, and are first-class in every respect. We pack our Spoons and Forks one dozen in each box.

49 CHAMBERS ST.,
NEW YORK.

Factories,
WATERBURY, CONN.

18 FEDERAL ST.,
BOSTON.

INDUSTRIAL ITEMS.

NEW HAMPSHIRE.

Among Manchester's heavy taxpayers are the following manufacturing concerns, with their respective amounts: Amoskeag Manufacturing Company, \$49,287.70; Manchester Locomotive Works, \$2388.72; Gaslight Company, \$2813.48.

MASSACHUSETTS.

The new tack manufacturing concern at Sandwich takes the name of the Bay State Tack Company. The factory is well under way.

The finishing touches are being made to the roof of the addition which Buchanan, Bolt & Co. are building to their wire works at Holyoke.

H. C. Spaulding, of Boston, and Oliver Warner are arranging for a wholesale experiment in lighting Holyoke by electricity. The apparatus will be run with power from the new wheel-pit which the water-power company are going to put in for their Cabot street mills. A tower will be built 200 feet high in some central locality, and the experiment will be to see how much of the city can be lighted. Mr. Spaulding is very enthusiastic on the subject, and has already tried the whole thing in other places so successfully that he hardly calls it experimental now. He wants eventually to have Holyoke adopt the system, and says that with seven such towers as he proposes to build he can make the whole city as light as day, both indoor and out. He asks for local aid to the extent of \$15,000, which he seems in a fair way of obtaining.

CONNECTICUT.

Work on the Chapinville Furnace is being pushed rapidly forward. The four piers are finished, and the brick arches are fast nearing completion.

NEW JERSEY.

The National Window Glass Association will hold a meeting at Cape May on July 14.

PENNSYLVANIA.

No. 1 Blast Furnace of the Lackawanna Iron and Coal Company, in blast one year, April 2, 1880, made during that time 23,963 tons 16 cwt. 3 qr. 24 lbs.—weekly average of 400 tons 16 cwt. 3 qr. 12 lbs., on an average percentage yield of ore, 50.49. The above is claimed as the largest year's yield ever made by any one furnace in the anthracite region. The steel works made last week the largest yield yet made in any one week, viz., 2553 tons 18 cwt. of ingots. Exceeding any previous week's work by over 100 tons.

The first rail on the new Cambria and Somerset Railroad was laid on Monday morning, the 2nd ult. The track laying was commenced in Johnstown.

Windsor Furnace, at Leesport, Berks County, which was destroyed by fire recently, has been repaired, and was to have been blown in last week.

The Norristown Furnace of Jas. Hooven & Sons went out of blast on the 20th, on account of the condition of the iron trade.

The Enterprise Machine Works, Philadelphia, have opened their new factory and begun the manufacture of the Rich & Morrison gas consumer, for use in puddling and heating furnaces.

The failure of Charles F. Shoener, a well-known business man and coal operator of Philadelphia, and proprietor of the Green Wood Rolling Mill and Shoener & Allen's machine shops at Tamaqua, is announced. Inquiry at his office revealed that the machine works at Tamaqua were closed June 24 under a Sheriff's execution, and that the closure is for an indefinite period. As yet no statements of the assets and liabilities have been made, but it is understood that the latter are heavy. Mr. Shoener has not yet decided what steps he will take, whether to effect a compromise with his creditors and continue the business, or allow the property to pass from his hands. The failure was brought about by the depression in the iron trade, aggravated by the suspension of the Reading Railroad Company. It is also stated that the Coleraine Furnaces, owned by Mr. Shoener, have closed.

Work at the new glass factory at Monongahela City still goes actively on; 150,000 feet of lumber will be used in the buildings. The enterprise is being pushed with great vigor.

The combined anthracite coal interests at a meeting in Philadelphia on Thursday, the 24th ult., decided to continue the present plan for restriction, by working three days alternately in each week during the month of July.

The Mt. Hickory Furnace, it is expected, will be started again in a few days, as the work of getting ready is now going on.—*Sharpsville Advertiser*.

The Baldwin Locomotive Works, Philadelphia, are now employing 2750 men, all working as full time as the weather will permit. During the past half year they have turned out the largest amount of work ever done in the same time. Upward of 260 locomotives have been sent out in six months, and the orders already entered warrant the assertion that the last half of the year will show a still further increase on what they have hitherto been able to accomplish. During August they will ship 12 locomotives to Australia, besides street motors. They have quite a number of motors under way, including 4 for Brooklyn, 6 for San Francisco and several for other cities. Indications seem to show that in the immediate future there will be a larger business in railway equipments than has ever been known.

Selden G. North, the well-known manufacturer of the universal lathe-dog, in connection with his brother, Ralph H. North, has leased the foundry formerly run by Barnet Le Van at Twenty-third and Race streets, Philadelphia. They intend making a specialty of fine light castings, and will no doubt command a large trade. The firm name will be North Brothers.

PITTSBURGH AND VICINITY.
Park, Long & Co., of the Vulcan Forge, in a card dated June 22, announce that they have disposed of their tool department to the Iron City Tool Works, Limited. The latter company will continue the manufacture of picks, vices, sledges and heavy hardware.

The steamboat transfer of the B. and O. Railroad C. company across the Monongahela River, in the 23d ward, has opened up an immense business with the Pittsburgh and Lake Erie line, upward of 100 cars per day being transferred. The cars represent a large number of roads, including the Chicago and St. Paul, New York, Ohio and Pennsylvania, Erie Dispatch Line, White Line, Red Line, Hocasac Tunnel Line and numerous others. The cars westward bound are principally loaded with coal and coke, although limestone, glass sand and other materials are transported in large quantities.

The Keystone Bridge Company has been awarded the contract for erecting a new iron bridge across the Monongahela River for the Panhandle Railroad, just where the present one is. The change is caused by the increasing business of the road and the need of double tracks, which will be laid upon the new structure. The superstructure will be ready to put up in two months.

When this is ready it will only take about a week to place it in position on the piers. While this portion of the work is being accomplished, the trains on the road will pass over the river on the trestles, or "false" works, expressly arranged for that purpose.

The South Side window glass factories will nearly all shut down this week and remain idle for the summer. Many of the flint glass houses give their employees a week's vacation before the 4th, and improve the time by making necessary repairs.

Mr. H. D. Murray, for a number of years actuary of the Western Flint and Lime Glass Association, has resigned his position, and will hereafter be associated with the new Phoenix Glass Co., at Phillipsburg. The Plunkett Glass Works, on the South Side, is in the list of sheriff's sales. The lease of the Plunkett Glass Company, who have been running the works lately, is therefore brought to a sudden ending, and the large stock of chimneys on hand will have to be disposed of at once.

At George Duncan & Sons', South Side, the old factory is fast disappearing and a new one is taking its place. The workmen are getting along well with the furnace, which is about ready for the bricklayers.

WEST VIRGINIA.

A distressing accident occurred at the Riverside Blast Furnace, of Wheeling, on June 24. The men were engaged in working about the blast when part of the bosh fell in, scattering the metal in all directions. Frank Hearne, the manager, was seriously burned, with six others, two of whom are not expected to recover from their injuries. The Benwood Mill has shut down in all departments for a stop of three weeks.

OHIO.

The Buckeye Glass Works at Martin's Ferry shut down on the 19th ult. for two weeks. This company is giving considerable attention to the manufacture of glass torches for the coming campaign. A large shipment of these has recently been made to Chicago.

The Steubenville Furnace and Iron Company have leased their furnace for three years to F. Bates, of Cleveland, who will begin repairs immediately, preparatory to starting up at the earliest possible date.

The mill of the new Weiderville Plate and Sheet Iron Company was to have made a trial run on last Monday, the 25th ult. The company propose starting up for business on the 6th inst.

Beatty's Glass Works, at Steubenville, are still in operation, but will probably shut down soon. Their new Nicholson Furnace is very nearly completed.

Alice Furnace, at Ironton, generally known as "Big Etna," is expected to start up some time in July.

Belfont mill and nail factory, at Ironton, were to have shut down last Saturday, the 26th ult., for a few weeks.

A meeting of the Ohio River Railway Company directors was held at Ironton last week, at which a proposition for building the road was made by Mr. W. W. Franklin, of Columbus. He proposes to put the road in first-class order and equipment, and have the cars running through from Columbus to Ironton by January 1, 1881. The consideration he will receive is \$400,000 in bonds and \$500,000 stock in the road. This proposition was conditionally accepted.

The Belaire Window Glass Works are shut down, and are engaged in pushing their new works to completion. They will start September 1st with a capacity almost double that which they now have.

Advices from Dayton state that on the morning of June 22d the gauge of the New York, Pennsylvania and Ohio Railroad was changed from broad to standard gauge. Twenty-five hundred men were placed along the line from Dayton to Lewisburg, a distance of 225 miles. Work was begun at 3 o'clock, and the last spike was driven at 9:30 a.m.

Mr. James L. Edwards, the superintendent of the Ward Iron Company's Old Mill, at Niles, and others, have purchased the Dover Iron Mill, at Canal Dover. It was built in 1871, but never was much operated. The machinery is nearly new. These works have eight boiling furnaces, of 16 tons capacity daily; one heating furnace, 20 tons; one muck train, also one 10-inch guide mill. Will make round, square and flat in all sizes. Messrs. J. L. Edwards & Co. (the new firm) expect to commence running on the 21st, and have several orders already booked.

The Belmont Glass Works at Bellaire is working now with only one furnace, the other being out for repairs. The company will probably close up during the first two weeks of July.

The Cleveland Industrial Machine Company have recently opened an office and works at No. 60 Merwin street, for the manufacture of all kinds of machinery, but are especially engaged on engines and elevators. They are very busy at this time.

The Union Rolling Mill Company, a newly-organized company for manufacturing iron, have located their office at 127 Superior street, Cleveland. S. W. Session is president; A. S. Upson, vice-president; and S. A. Fuller, treasurer and manager. Their mills, formerly operated by the Union Iron Works Company, are located at Newburg, and will soon be started up.

Messrs. Wm. G. Fisher & Co., of Cincinnati, made a fine display of the working

H. D. SMITH & CO., Plantsville, Conn.,

Manufacturers of the

BEST QUALITY CARRIAGE MAKERS' HARDWARE.

Manufacture the Largest Variety of Forged Carriage Irons of Best Material and Workmanship.

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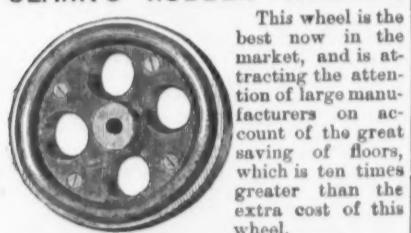
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BRITISH BULL DOG REVOLVERS, 38, 44 and 45 Calibre.

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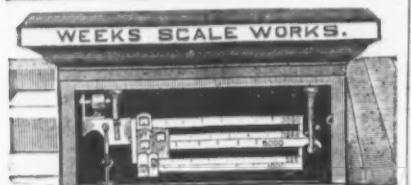
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Adapted to all purposes, viz., Warehouse trucks, platfroms, boxes, carts and heavy carriages. For full particulars see the first issue of The Iron Age next month, or address

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Annual production 150,000 sets.

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This machine is warranted to make a clean cut, is easy in its operation, and has been before the public for many years, giving the highest satisfaction to all who use it.

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And all Merchants in the United States, and of the
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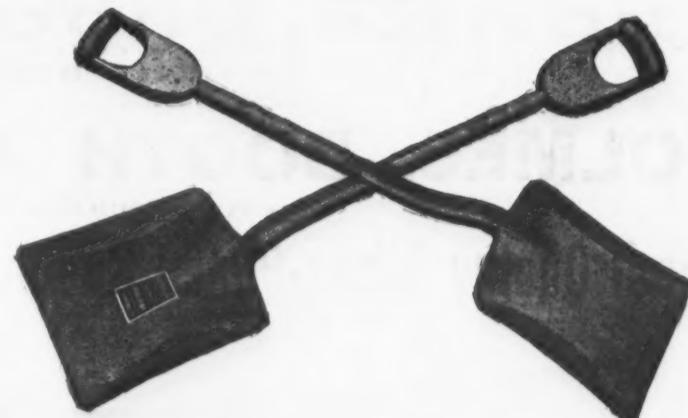
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Minutes dComplete. Price, \$10.
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Manufacturers of Calkers', Carpenters', Stone Cutters' Tim, Copper and Boiler Makers'

MALLETS,

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also all kinds of Handles, Sledge, Chisel and Hammer Handles. Also

COTTON AND BALE HOOKS,
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Portable Forges,

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by Chain Gear and Flat
Belts. Strong, blast and
durable. Send for Cata-
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Limited,

Works established at Reading, Pa., in 1848.

Manufacturers of

CAST IRON WATER AND GAS PIPE,

With special Castings, Flange Pipe, Water Gates, Fire Hydrants, Lamp Posts, &c. The largest and most
modern Turbine Water Wheel, Machinery and
Castings of every description for Furnaces, Rolling
Mills, Grist and Saw Mills, Mining Pumps, Hoists, &c.
Columns, Brackets, Iron Railings, &c.

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BUFFALO, N. Y.,

Manufacturers of

R. R. Track Scales, Hay Scales, Coal
Scales, Grain Scales, Platform
Scales, Counter Scales, &c.

Send for price list, stating what you want.

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Machine Belting,
Steam Packing,
Leading Hose,
Suction Hose,
Grain Elevator
Belting,
Steam Hose,
Piston-Rod
Packing,
Gaskets and Rings.



Vacuum Pump
Valves,
Ball Valves,
Car Springs,
Wagon Springs,
Gas Tubing,
Machine Belting,
Wringer Rolls,
Billiard Cushions,
Grain Drill Tubes,
Emery Wheels.

This company manufactures the immense DRIVING and ELEVATOR BELTS for the Buckingham Elevators at Chicago, which have been running perfectly for more than Twelve Years, also those for Armour, Dole & Co., Chicago, and Vanderbillt's great elevators of the New York Central and Hudson R. R., New York, being the Largest Belts in the World! We are now making an Elevator Belt, 36 inches wide and 200 feet in length, which will weigh over 16,000 pounds.

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Solid Vulcanite
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The properties of these Wheels are such that they can be used with great advantage and economy for cutting, grinding, and finishing Wrought and Cast Iron, Chilled Iron, Hardened Steel, Slate, Marble, Glass, etc. These Wheels are extensively used by manufacturers of Hardware, Cutlery, Edge Tools, Plows, Safes, Stoves, Fire Arms, Wagon Springs, Axles, Skates, Agricultural Implements, and small Machinery of almost every description.

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B represents that part of the packing which, when in use, is in contact with the Piston rod.
A is the elastic back, which keeps the part B against the rod with sufficient pressure to be steam tight, and yet creates but little friction.

This Packing is made in lengths of about 20 feet, and of all sizes from $\frac{1}{4}$ to 2 inches square.

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This practical and indispensable article—especially for wear where exposed to ice, snow, or slush—was first introduced by this company several years ago, and its real value is in being almost indestructible, when proper materials are used in manufacture, whilst the cheap, inferior quality forced on the public by reckless imitators of our patent goods soon becomes brittle and crumbles to pieces. Address

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CUT TACKS, SHOE NAILS, WIRE NAILS,

Pat. Brads, Finishing Nails, Clout Nails, Trunk Nails, Hungarian Nails, Cigar-Box Nails, Basket Nails, 2d and 3d Fine Nails.

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qualities of their "Active" wrought-iron ranges at the Millers' International Exposition. They produced bread, biscuits and cakes of the finest quality, demonstrating the utility of their ranges, and at the same time showing the difference in the yield of a superior quality of flour from that of inferior grades. Their ranges received first premium and much praise from visitors and judges of good cooking. A number of orders were received by this firm for their "Active" ranges during this month from new customers, and they anticipate a heavy trade this year. They exhibit at their warerooms a large collection of newly-improved patterns in ranges and heating stoves.

Messrs. W. C. Davis & Co., of Cincinnati, made a very fine display of their "Favorite" cook stoves and their "West Point" hard-coal base-burner heating stoves, which attracted much attention for completeness and finish. The samples shown received much praise and were awarded the highest premium. The works of the above firm are being pushed to their utmost capacity, with large orders far back orders still unfilled. They anticipate a heavy trade this season.

ILLINOIS.

The new building which is to be used for the North Chicago Rolling Mills is being vigorously pushed forward. It is situated just north of the Calumet River, and within a few yards of the lake. There will be but little trouble in getting iron to and from these new mills, as there is a good harbor and plenty of water. There will be two switch tracks connecting with the railroads.

The Joseph H. Brown Iron and Nail Mills at South Chicago are closed temporarily, but work on the company's new blast furnaces is progressing rapidly, and will probably be completed on the 1st of August next.

MISSOURI.

Preparations are being made at Neidringhaus' Rolling Mills in St. Louis for a new steam hammer. The improvements at this establishment are being rapidly pushed to completion.

McDonald's Rolling Mills are undergoing a thorough overhauling and repairing. The forging of car axles, however, still continues.

MICHIGAN.

The 25 years corporate existence of the Detroit Locomotive Works expired by limitation some days ago, and the company was immediately succeeded by the Buhl Iron Works. The company had determined to transfer all the property and franchises of the works to a new organization before the old corporation was actually dissolved, and by unanimous vote the Buhl Iron Works will be its successor. The following were chosen directors of the new company: C. H. Buhl, John Owen, D. R. Pierce, Cleveland Hunt, T. D. Buhl, R. A. Alger and Wm. A. Moore. The business will continue without interruption, the only change being that of name. The company has not made any locomotive engines since 1857, and the old name was thus misleading.

KANSAS.

The Kansas Rolling Mill Company are building another heating furnace for rail mill use, and have likewise a universal mill.

KENTUCKY.

Kenton Furnace blew in June 14th, and is doing very well.

TENNESSEE.

We learn from the Chattanooga *Advertiser* that resumption of work at the Vulcan Iron and Nail Works, of that city, has been indefinitely postponed. No attempt will be made to run any part of the works, and the whole establishment will be idle until it is sold under the trust deed. The rolling mill will have to be very fully overhauled before it can be operated economically, and it will probably be idle for several months.

ALABAMA.

The new rolling mill at Birmingham was expected to start up on last Monday, the 28th ult.

LABOR AND WAGES.

The following is the Pennsylvania law regarding the hours of labor passed in 1868: First. (Laborers.) Eight hours of labor, between the rising and the setting of the sun, shall be deemed and held to be a legal day's work, in all cases of labor and services by the day where there is no contract or agreement to the contrary. Second. This act shall not apply to or affect in any way farm or agricultural labor or service by the year, month or week; nor shall any one be prevented, by anything herein contained, from working as many hours over time or extra work, as he or she may see fit; the compensation to be agreed upon between the employer and the employee. All other acts or parts of acts relating to the hours of labor which shall constitute a day's work in this State are hereby repealed.

W. D. Wood & Co., of McKeesport, Pa., refused to employ any men who belonged to the Amalgamated Association, and a number of the workmen have withdrawn from the association in order to regain their places. Most of the former employees, who were members of the union, however, still refuse to yield.

The Crane Iron Company, Catasauqua, Pa., gives notice that a reduction of 10 per cent. will be made on all wages of employees after July 1.

Signing scales does not seem to relieve the Pittsburgh mills from strikes, and those of a most petty kind. Several are in progress now.

There is a strike at the National Tube Works, McKeesport, Pa., among the welders, owing to a reduction to what the company claim to be Pittsburgh prices.

One of the silliest strikes that we have heard of lately is, or was, in progress at the Mosler Safe and Lock Company's works, Cincinnati, against a man who had lately been promoted to the foremanship of the shop. The charge against him is that he sneered at the men some months ago when they demanded an increase in wages. "On what meat do these Caesars feed?"

The workingmen of the P. & R. C. & I. Co. shops have formed a beneficial association, the object of which is to mutually assist each other in case of accident or sickness, and their families in case of death. The association is under the control of a

Board of Directors. In case of death each member will be assessed 50 cents, the aggregate assessment to be paid to the widow or next of kin, or be devoted by the directors to paying the funeral expenses. On the death of a member's wife, 25 cents will be assessed on each member. Sick and disabled members will receive \$6 per week.

Our readers will remember that at the National Coal Miners' Convention held in Pittsburgh early in the year, direful things were voted to be done Aug. 1 unless the operators yielded. It seems that the leaders are getting weak-kneed over the prospect of carrying out the programme. The Secretary for Ohio says: "Much has been said and more thought on 'What will the miners do on the first day of August?' An attentive listener will be made acquainted in a short stay among the miners with the fact that there is a great lack of confidence existing among them, as a class."

The threat recently made by the boilers of this country that they would not work iron made in the country and brought here, contributed largely toward knocking the bottom out of the English boom.—*Labor Journal*. It is well to have a good opinion of one's self.

A strike of some importance is in progress at the forge and iron works, Pittsburgh, over the discharge of a workman whom it is claimed was discharged for his unionism. It is getting so now that a union man cannot be discharged for any reason, no matter how good, but there is a strike at once.

Hon. Miles S. Humphreys, Chief of the Bureau of Statistics of Pennsylvania, has just issued his annual report. His wages tables are quite interesting. After presenting a large number of detailed reports, giving the names of the employers, number of men employed, where located, nature of business, &c., the report concludes with the following, showing the average weekly wages of employees, the average weeks employed during the year, with the total earnings for the year 1878. We give only those trades having interest for our readers:

Occupation.	Average.	
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The Iron Age

AND

Metallurgical Review.

New York, Thursday, July 1, 1880.

DAVID WILLIAMS Publisher and Proprietor
JAMES C. BAYLES Editor.
JOHN S. KING Business Manager.

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The publishers of *The Ironmonger*, 44 Cannon street, London, England, will receive orders for subscriptions and advertisements on our regular terms.

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Forty-first Page.—Boston Hardware and Metal Prices.

The statement recently made public on the authority of Secretary Sherman, that the cost of our civil war was upward of \$6,000,000,000, has again directed attention to the wonderful financial history of this country for the past 20 years, more especially during the past 15 years. In that time we have paid \$500,000,000 of the national debt, or nearly one-third of its total at the moment of its greatest amount. Not only this, but the interest account has been reduced by reduction of the debt and refunding of the same from \$150,000,000 per year to about \$80,000,000. At present the reduction is going on at the rate of half a million a day. This is a showing far superior to the boasted "payment of the milliards." France borrowed her milliards; we have paid our millions, and this has been accomplished without any burdensome taxation. The national revenue of Great Britain is \$13,000

per head of population, of France \$16,000, while in the United States in 1879 it was but \$5.50. Notwithstanding this showing, it could be better. It is costly military and kingly establishments that run up the expenses in European Countries. Perhaps their civil list outside of these would make as good a showing as ours.

What are the Facts About Iron Stocks?

Probably the most injudicious people in the iron trade at this time are the class of dealers who go about among consumers predicting an early recovery, and urging purchases at present prices as a good investment. We do not care at this time to dispute the general correctness of their views, but whether right or wrong they are acting injudiciously, and are doing vastly more harm than good.

What is wanted just now more than anything else is correct and comprehensive information. The average consumer of iron is not such a fool as to be misled by the confident talk of dealers, whose only object in life is to sell iron to the best advantage possible. In fact, he is rendered suspicious when he discovers too much anxiety on the part of the dealer to impress him with a rose-colored view of the immediate future. The broad facts that everybody knows are that there is a large surplus of foreign iron in the country, that it is being pressed for sale at low prices to cover bankers' advances, and that until this surplus is reduced to convenient proportions recovery cannot take place. It is also known that consumption, large as it is, is not preventing a considerable accumulation at domestic furnaces, that more furnaces are now making iron than can sell it profitably, and that a considerable contraction of production would be attended with advantage to the trade at large. This much everybody knows; but when more detailed information is sought—when an effort is made to find out how much iron is held in store and yard and bonded warehouse, what it is and who owns it, the difficulties of the inquiry become practically insurmountable. Misinformation or no information at all are all that any one can get who sets about collecting it. Between the conflicting statements of the bulls and the bears, the buyer is naturally led to magnify the actual obstacles to recovery. The one tells him that consumption is rapidly reducing the stock of desirable iron in the market, and that before cold weather iron for immediate delivery will again be scarce; the other tells him that every available inch of store and yard room is full, and that those who are now receiving consignments of iron are obliged to let it go into bonded warehouse, being unable to find any other accommodation. Of the condition of affairs in Philadelphia, the *North American* of the 22d ult. says:

The tide of foreign iron which has been pouring into this port since the commencement of the boom last spring, and which, even now, continues without interruption, has been a blessing to the bonded warehousemen, and they have reaped large profits. These warehouses are filled to bursting with the products of the foreign furnaces, and at one time the lack of accommodation was so apparent that importers and the custom-house people were at their wits' end where to store the constantly arriving imports. Within the last month three new bonded warehouses have been established which have somewhat relieved the pressure. One of them has been started at Girard Point, but it is already engaged full. The two others are at Fitzpatrick's and Hoffman's yards. Under ordinary circumstances our bonded warehouse room is ample, although it does not compare with Brooklyn. A custom-house broker, in speaking about this subject, said that there is only room left for about 2,000 tons of general order iron. Importers are paying the duties on foreign iron and storing it in free warehouses to wait for a rise.

From Baltimore we have rather more specific information. A well-informed correspondent in the trade sends us the following statement of the stock of foreign iron in that port:

Pig iron	14,000 tons.
Old rails	7,000 "
Wrought scrap	1,000 "

Our correspondent says: "The pig is generally of poor quality, about 2,000 tons only being Scotch, and about 1,800 tons of that is held by agents. Much of the rails and pig is held by your city."

It is a mistaken policy, under existing conditions, to try to bolster up iron. It cannot be done, and the effort only complicates the evil. Facts, clearly and authoritatively stated, are what are wanted at this time. The great mass of consumers would face the actual situation with a great deal more confidence than they can the unknown accumulation. If there is one, two or four months' supply in store and yard and at furnaces, the announcement would have only a beneficial effect. If the facts concerning the stocks of Scotch iron were known, many wrong impressions would be corrected and much more confidence would probably be felt than is now possible. The same would be true with regard to English irons, if it were known of what the large stock is composed and how apportioned among the different grades. Of the large amount of English iron in this country, both pig and manufactured, the greater part is rather poor stuff, and much of it very bad indeed. We imagine that the surplus of foreign iron which can compete with good American brands on any other basis than that of cheapness, is not so large as is generally supposed. At any rate, the facts will be less formidable than the speculations of consumers.

The British Iron Trade Situation.

The Board of Trade returns for May show with some accuracy the extent of the relapse which has overtaken the iron trade of Great Britain. The cessation of the American demand is a fact which at last forces itself on the trade, and the cessation of speculation has carried the market to a point of depression which is not warranted by any increase that had taken place in what the English trade papers call "solid business." But outside of the American demand there is some substantial improvement, which it is hoped will continue to develop until the harvesting of the crops, which is expected to give trade a considerable impetus. The May returns show some improvement in Indian, Colonial and South American trade, but not enough to warrant any great expectations for the future.

The latest trade advices are to the effect that the recent slight increase of firmness in Scotch warrants was purely speculative in character, and had no increase in the consumptive demand behind it. The manufactured iron trades are in an unsatisfactory condition, and the shipbuilding and engineering departments are becoming slack. A slight improvement in pig iron is reported from Middlesbrough, mainly owing, as usual, to the firmness in the Glasgow market. The fall in iron has favorably affected the shipbuilding trades. All over the Tyne district a feeling of depression prevails, tempered by the consideration that in the absence of speculation the balance of trade may be expected shortly to right itself. The demand for Bessemer and forge iron has almost ceased in the Northwest, and small parcels of both have been disposed of as low as 62s. 6d. per ton, an immense reduction from the prices ruling but a short time ago.

There are inquiries both from the Continent and America, but the actual sales have been very few. Nevertheless, owing to the orders booked forward, there is no apparent diminution of the activity in either furnaces or forges. There is a very flat market at Manchester. In the Barnsley district, in face of the same slackness, production is being kept up, and in one instance has been extended. In other parts of Yorkshire similar conditions prevail, with complaints of over-production. In the Leeds district alone, trade, for the best Yorkshire, is reported to be fairly active. From South Wales also the news is not so unsatisfactory as from some other quarters. The staple trades of Birmingham are dull, without hope of improvement; and the same applies, with a few exceptions, to the local industries of Wolverhampton. The coal trade remains in its usual depressed condition where it has not changed for the worse.

As the rule, the English trade papers try to speak cheerfully of the situation, but it is evident that the outlook is by no means bright. In the absence of any hope of breaking the cordon of "hostile foreign tariffs" which surround her, Great Britain is compelled to face the inevitable fact of a shrinkage of her great industries. What remains to her of the world's trade is not much in proportion to her productive capacity, and the probabilities are that it will rather diminish than increase. But her position in this matter should not be mistaken. The British Lion is not dead by any means. It is sorely hurt, but its wounds only make it more ravenous in its quest for markets, and more terrible in its competition with the industries of countries which open their ports to English manufacturers. We have only to look at our markets to-day to gain some idea of what would happen under anything approximating to free trade, or even under "a tariff for revenue only." Idle men and idle machinery, capital unproductive, and all the veins and arteries of trade choked with accumulations of foreign goods—chiefly English. These are but suggestions of the results which would follow opening our ports to Great Britain under a revenue tariff. Until we are sure that our agricultural products are not already in excess of the requirements of trade, we would do well to take care of our manufacturing industries. It would be madness to do otherwise.

The suggestion of our correspondent in the way of a remedy is valuable, and we have no doubt that many of our readers will find it very useful. It does not necessarily dispose of the question of private brands, but the practice he proposes will go a long way toward overcoming the evils of the present system. Probably no better plan can be devised for the use of consumers while the trade is in its present demoralized condition. We therefore heartily commend it to the consideration of our readers. We cannot indorse in every particular the standards of grades laid down by our correspondent, but while differing from Mr. McCann in some minor particulars, we consider his suggestion a valuable one.

There is one point to which we would again call the attention of consumers. The original source of the evil of private brands was an insane demand upon the part of consumers for lower prices. Goods of certain nominal grades were demanded at figures which could not afford a reasonable profit to manufacturer and importer. No stipulation was made as to actual quality, but appearances were to be maintained. Had it not been for this the evils of private brands would never have existed. The remedy proposed by our correspondent is one to be used by the very men who, directly or indirectly, are responsible for the present condition of the trade. But it is one which will cost something to put in practice. In other words, a good article is always worth a fair price, and consumers ought not to expect to buy it for less than a fair price. If orders are made out by such a schedule as our correspondent suggests, prices must be paid accordingly. This is as it should be. There

"workman in the mill, the average yield being about 300 pounds out of 400. They are getting large quantities of finished iron returned on account of bad workmanship." We are assured by the management of the mills that these are absolute untruths. They never had a better class of workmen than now, and they are making better iron and better weight than when the men were union men. The same course of misrepresentation was pursued at Catasauqua, at Scottsdale and at other places that could be named. In many of these cases we have investigated the charge of inferior work, and have seen from the books that the statements were false. The readiness of the men at these mills to strike is told in a remark contained in the article which we quote above: "Some of those who went to work under the iron clad, quit as soon as they found out that those on a strike are being supported." Who would not? There are but few men who would not rather be idle and be supported than work and support themselves. No doubt the union can get many men to strike if they will support them.

A Remedy for the Evils of Private Brands.

In another column we print the substance of a very practical communication on the evils of private brands and how to avoid them. The importance of the subject discussed, and the information of the writer, entitle his letter to the most careful consideration of our readers.

It is not necessary to enter into arguments upon the subject of private brands at this time. The facts existing are pretty generally admitted by all concerned. There is practically no defense of the abuses to which private brands have given rise. Accordingly, all that is left to do is to stamp out the evil, or by some means provide a remedy for it.

Private brands have been so generally abused by importers and dealers, that when an individual consumer has become disgusted with his treatment at the hands of some one house, he has not known where to turn next, for all were selling about the same grade of goods and in about the same manner. Hence "humblebugging" has been easier of accomplishment than a literal rendering of our correspondent's words would seem to indicate.

It is greatly to the credit of the houses engaged in the tin-plate trade that they passed safely through the fearful ordeal of the late panic. This does not prove, however, that they have not, as the rule, and under the pressure of a supposed demand, lent themselves to practices which, when viewed from certain standpoints, are of questionable integrity. Trade terms have been adapted in their meaning to suit circumstances. With a general lowering of quality, terms indicating quality have not been modified. The man who to-day buys plates by brands in use a short time since, or who designates quality by terms he learned a few years ago, is not likely to obtain goods of satisfactory character. These changes, which are no secret, have always been made in the interest of the seller and against the interest of the buyer.

Undoubtedly there exists a great deal of misapprehension on the subject of private brands, as our correspondent asserts, and, for that matter, concerning brands in general.

That there are some reliable private brands no one will question, and, on the other hand, it is equally true that there are many unreliable makers' brands. The complaint of the consumer is not against brands, but against the misuses of brands. What he wants is some reliable means of indicating quality. He has learned to look upon brands as statements of quality. He wants those statements to be trustworthy in all respects.

The suggestion of our correspondent in the way of a remedy is valuable, and we have no doubt that many of our readers will find it very useful. It does not necessarily dispose of the question of private brands, but the practice he proposes will go a long way toward overcoming the evils of the present system. Probably no better plan can be devised for the use of consumers while the trade is in its present demoralized condition. We therefore heartily commend it to the consideration of our readers. We cannot indorse in every particular the standards of grades laid down by our correspondent, but while differing from Mr. McCann in some minor particulars, we consider his suggestion a valuable one.

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is no house in the country dealing in tin plate which will not furnish a fair quality of goods for a fair amount of money at any time. As we have at different times remarked, the consumer has been getting just what he ordered and just what he paid for. He first invited the delusion, and therefore it is his own fault if he is not satisfied. With due respect for his complaint, we still lay the major share of the responsibility at his door. With an intelligent remedy for the evils of which he complains now placed before him, will he act upon it and extricate himself from his uncomfortable position?

The "Grand Continental Federation."

We have before us a copy of a call for a National Convention of Trade Unions, having for its object the formation of a Grand Continental Federation, to include all international, national and local trade unions in the United States and British North America. The objects of this proposed Grand Continental Federation are stated as follows:

1. To discuss and examine all questions affecting the interest of the working classes which cannot be acted upon in special trade or labor unions, and to concentrate labor so as to enable it to successfully cope with concentrated capital.
2. To impress upon the various branches of industry the importance and necessity of maintaining protective unions.
3. To devise the best means of adjusting difficulties that may arise between employers and employees.
4. To prepare in legal shape, and present for enactment to the different governments, bills for the removal of statutory restrictions of the rights of organized labor, and also for the enactment of laws tending to ameliorate the conditions and promote the welfare of the working classes, and take steps to urge their passage.
5. To encourage productive and distributive cooperation.
6. To propagate strictly trades-union doctrines, and, wherever possible, disseminate arguments in their favor, and generally to elevate unionism, and obtain for it the respect and recognition to which it is entitled.

This sounds very well, but the same may be said of a base drum vigorously beaten. We have no doubt that many workingmen will be impressed by the above programme, and conclude that the proposed federation is a very magnificent thing which, if organized, will be able to accomplish vast good for the interest of labor. We ask them to look a little further. It is every man's right, and to some extent his duty, to be governed by considerations of self-interest. To accomplish any good, the federation must be able to establish a better relation between the individual master and the individual workingman. Is there any reason to hope that it will be able to do this? On the contrary, is there not every warrant for supposing that the scheme has been devised by ambitious organizers who, by stirring up strikes and promoting antagonisms between employers and workingmen in a larger

from it. In a word, the remedy for these fires caused by lightning seems to be the changing to iron of all wooden-top tanks.

It is not often that an English journal of the prominence and carefulness of the *Engineer* allows itself to give up the whole argument for free trade and own that the American theory of protection can by any means, or in any sense, be right; yet this is just what the *Engineer* has done in a recent editorial on the steel rail question and the attitude of the railroads of this country on the same, as expressed by Mr. Storrs before the Committee of Ways and Means. The *Engineer* says: "It will be seen that American railway companies look ahead, and hold that, although they may pay more at this moment for rails than they would do did free trade exist, yet that the operation of protection will stimulate native production and home competition, and ultimately give them a cheap rail. The chances are that the argument will turn out to be sound." If that is not conceding all that Clay, Stewart, Carey and Kelley have claimed, we fail to get the meaning of words. If the argument "turns out to be sound," it justifies the position that American protectionists have held for more than a generation, and that American and English free traders have combated for as long. The *Engineer*, in a charming bit of *naieté*, at the close of the article from which we have extracted the above, gives its especial ground of complaint: "The point of special interest for the British steel maker is that consumers across the Atlantic should be protectionists. This is contrary to all the accepted laws of political economy, and augurs ill for the future of our rail trade with the United States." That consumers should be protectionists is "contrary to all the accepted laws of political economy." What laws, and by whom accepted? Certainly not by American protectionists, for they claim that, according to political economy, consumers in the United States should be protectionists, and how they could be anything else, if, as the *Engineer* says, Mr. Storrs' argument "should turn out to be sound" we cannot see. If sound, the "accepted laws of political economy" are unsound.

It seems that the French government, despairing at last of enticing the American fly into its reciprocity web, have taken other steps and are offering inducements. Premier De Freycinet, receiving a deputation in favor of a Franco-American commercial treaty, is reported to have said that overtures had been made by the French minister at Washington, but Secretary Evarts had replied that though such treaty was desirable, circumstances obliged the United States government to defer negotiations. This is a diplomatic way of saying No, thank you!

NEW PUBLICATIONS.

STEEL: ITS HISTORY, MANUFACTURE, PROPERTIES AND USES. By J. S. Jeans, Secretary of the Iron and Steel Institute. E. & F. N. Spon, publishers, London and New York. Price, \$14.50.

At the time of its first appearance some months ago, we gave a summary of the contents of Mr. Jeans' new book on Steel, reserving for a future occasion a more detailed account of its character, its aims, its merits and its defects. A careful study of the work has confirmed our first impression. To those who wish to possess, within comparatively narrow compass, a fair scrap book of the literature on steel, the ponderous volume before us will prove of some service. Mr. Jeans in his preface clearly states that his labors have naturally been more those of compilation than of authorship. This is in a certain sense true of all text books. Percy and Kerl are both compilers—the latter especially so—and yet their books differ very widely in character from Mr. Jeans' work. Both are masters of their subject and of allied sciences, and are able, so far as persons who have not made metallurgy their practical, every-day business can be, to pass judgment upon conflicting theories or practical claims. Both of the eminent metallurgists named are profoundly learned and command well-deserved attention on the part of manufacturers and engineers, because in some branches they are authorities. Whatever may be found of value in Mr. Jeans' work, one fact is clearly proven by it—a fact which we have suspected before—that the secretary of the Iron and Steel Institute is not metallurgist, no engineer and no chemist, and that as a metallurgical authority he should be distinctly and emphatically repudiated. We acknowledge that credit is due to Mr. Jeans for having undertaken to fill a gap which has long been felt, and no one is better able to realize the difficulty attending an attempt to bring order out of a chaos of literature than those connected with technical journals; but we cannot help expressing our disappointment with the book before us. The subject is one of such scope that few, if any, metallurgists and engineers now living could expect to succeed, alone and unaided, in doing justice to it in all its bearings. Mr. Jeans has failed in some important respects, because he does not unite in one person the literary ability, the metallurgical and chemical knowledge and the experience of the practical engineer. Mr. Jeans' mistake has been that he has not recognized the necessity of that combination. He has probably thought that his own facility as a writer need only be supplemented by some hints and suggestions by such eminent metallurgists as Bessemer, Siemens and others. While we are thus forced to state that he has not shown much ability as an author, especially when purely technical questions are discussed, we are pleased to acknowledge that Mr. Jeans has developed an extraordinary amount of industry as a compiler. He has pretty thoroughly ransacked the stores of metallurgical literature, and has, on the whole, made fair selections. We have, we believe, said enough to show what our

impressions have been, and may now ask our readers to turn over the pages with us, with a view to making them better acquainted with the contents of the work.

In the first section, that relating to the history of steel, Mr. Jeans carries us by successive stages through the early prehistoric period of steel, and to its modern development in general and in Great Britain in particular. Another chapter, giving the progress of invention in steel manufacture, is drawn chiefly from the Patent Office records of Great Britain. The most important subjects discussed are the early discoveries of Musket and Heath, both of whom have been so unfortunate in failing to reap the advantages of their inventions. In the next 45 pages, Mr. Jeans relates, with much detail and just a little too much admiration, the history of the Bessemer steel industry. The chapter is one full of interest, and no one will read of the well-known severe struggles of the illustrious inventor without a feeling of satisfaction that he has been amply rewarded for his pluck and perseverance; but it is unfair and unjust to pass by in silence many well-known names who have really made the Bessemer process what it now is. The open-hearth process, treated in the next chapter, may also be well considered at the present stage of its development as the result of the labors of many men. After describing a considerable number of processes which have, deservedly or not, lost their interest to the greater number of metallurgists, Mr. Jeans passes to a series of historical sketches of the growth of the steel industry in many countries, beginning with the United States. For his data relating to the history of the trade in this country, Mr. Jeans has wisely confined himself to Mr. Swan's authority, while he has drawn freely upon Messrs. Holley and Smith's articles in *Engineering* and on Mr. Bell's reports for facts relating to the modern status of our industry. A little too much room is taken, under the historical sketch of Germany, by an elaborate description of the Krupp Works, matter which would, together with similar descriptions, belong more properly to other sections of the work. The notes on France and Austria are good, although we would have preferred to see the special circumstances affecting the steel trade of each country brought more prominently forward. A more elaborated and generalized essay on the development and present status would have given a fairer idea of the industry of each country than a detailed, comparatively unimportant description of the plant of one or two industrial establishments, however large they might be and however progressive their managers might prove. In some instances, where the subject has been treated in this manner by local metallurgists, Mr. Jeans has sufficiently appreciated its value to reproduce it, as in the case of Belgium and Sweden. *Apropos* of Sweden, Mr. Jeans indulges in a queer eccentricity. Probably misled by the fact that the description of an Austrian establishment appeared in a Swedish technical journal, Mr. Jeans quietly transfers it to the latter country, and we are startled to find the practice at the Eisbawald Works, Austria, serving as an example of Swedish methods. Some details relating to the steel industry of other countries, of which those for India possess greatest interest, closes the first section of the work, which, on the whole, we would pronounce the best.

The manufacture of steel is the second division, opened by a chapter on the earlier processes, partially still in vogue on a comparatively restricted scale. Among these we would count the cementation process, the manufacture of shear steel, the crucible process, the making of German and natural steel. Good and brief descriptions of these processes, brought up to date, are given. More than a hundred pages, profusely illustrated, are devoted to the mechanical appliances of the manufacture of Bessemer steel. Naturally, Mr. Jeans makes ample room for the American system, for a full presentation of which he is chiefly indebted to Messrs. Holley and Smith. There are brief descriptions of the Cumberland hematite deposits and the manufacture of pig iron from this ore; also a detailed and admirably illustrated account of some of the principal Bessemer works of England. Mr. Jeans reproduces, as a chapter on the theory of the process, Chernoff's well-known paper, to which some observations, made by Mueller of Osnabrück, are added. We must confess that of the two the elaborations of the latter metallurgist appear to us a more able and more modern exposition of the principles involved. We are surprised that Mr. Jeans should have contented himself without even mentioning in his "theory of the Bessemer process" the important role which the lining plays. True, he discusses this at length in other portions, but we are at a loss to find out what reasons can have possibly led him to separating topics so closely related in an arbitrary manner.

The way in which the open-hearth steel manufacture is described is without such disturbing lack of system, and we feel confident that American metallurgists will find it interesting as well as profitable to study this account, which is chiefly confined to English practice, although the recent improvements, like the Pernot Furnace, are accorded ample space and attention. A chapter on the various methods used from producing sound castings by the Whitworth, Neuberg, Jones and Daelen processes, and by the well known Terreno method, close this section, which is almost exclusively descriptive in character, no critical examination being attempted.

Mr. Jeans' weakest point appears to be chemistry, to judge from the manner in which his articles on "Chemical Properties" are built up. It is true that the mass of incomplete and contradictory evidence which has accumulated within the last decade relating to the chemical constitution of steel is perplexing. We hardly think, however, that it is fair to expect the average reader to go through pages of matter giving the views of numerous authorities on the question how carbon, manganese, phosphorus, &c., affect steel. What was wanted was a short, clear exposition of the present status of the question, and some words indicating the course to be pursued in investigations touching upon the subject. Mr. Jeans ought to have intrusted

his manuscript to the care of some thorough chemist, who would have undoubtedly succeeded better in giving a summary of the methods used in determining carbon, manganese, phosphorus, &c., in iron and steel, and would certainly not have permitted such slips like "silicium," on pages 556 and 557, and repeated references to "Freneus." Mr. Jeans appends to his remarks on phosphorus in steel a brief and admirable review of the question of the elimination of phosphorus, in which, however, we are astonished to see he mentions, before speaking of the Thomas and Gilchrist process, M. Harmet's proposal to use two converters. We are at a loss to see why this was not brought in incidentally during the discussion of the basic process, of which it is a modification, instead of being accorded the dignity of apparently standing independently. The final series of chapters on the physical and mechanical properties of steel is a very voluminous one, which, though it contains little new, embraces all that has been done in the way of experimental research. Full acknowledgment is given to the important contributions made by American engineers, and we may mention that, in general, Mr. Jeans appears to be much impressed by the achievements of those working on this side of the Atlantic. Mr. Jeans' last section, however, suffers from the drawbacks of the whole work. He has been overwhelmed by the great mass of matter obtained by diligent and conscientious search, and has not had confidence enough to let the bulk of it alone. He has given to the public the scrap book which ought never to have left his desk, as its true purpose was only to serve him as a basis for his final volume. He should not have stopped where he did, but ought to have continued his labors by boiling it down to just one-half its present bulk of 850 pages. In its present shape we can only recommend it to those who wish to have at hand for easy reference a very full summary of the contents of the technical literature of the last decade. As such it deserves to fill a place, until now unoccupied, but we need hardly repeat that, as a text book on the manufacture of steel, it does not meet a want severely felt by all. It seems to us an open question whether the time has come when such a book can be safely issued. The technology of steel is near the solution of a number of all-important problems, and is so likely to undergo general and sweeping revolutions, that a book now issued would probably be soon out of date. Mr. Jeans' work very closely reflects the present chaotic condition of knowledge, and it has, therefore, considerable value. As a condensed library it will be a revelation to many.

THE ANTHRACITE COAL FIELDS OF PENNSYLVANIA.

By P. W. Shearer, M. E., Pottsville, Pa.

We have received from Mr. Shearer, whose statistical chart and tables we had occasion to refer to quite recently, a copy, in pamphlet form, of a paper read before the American Association for the Advancement of Science. It is a short popular review of the resources of our anthracite regions, and is, we imagine, chiefly intended to emphasize the fact that we are very ruthlessly wasting two-thirds of treasures which are, comparatively speaking, limited in extent only. He computes that the anthracite veins practically available for extraction would be exhausted in 186 years. At the time the paper was read we gave a short abstract embodying the principal points made. Mr. Shearer appears to be considerably puzzled by the great disturbance of the coal strata from their original position, and by the absence of fossil remains in them. He seems to lean toward the theory that contraction of the earth's crust brought about the movements in the strata.

SCIENCE: A Weekly Record of Scientific Progress.

John Michels, editor, New York. Price, \$4 per annum.

With the aid and co-operation of a number of scientists, Profs. Baird, Holden, Marsh, Wilder, Young and others, Mr. Michels proposes to found a weekly newspaper which is to be a weekly record of scientific progress, and is intended to afford scientists facilities for a prompt publication of the results of their researches, and to give them opportunities for an interchange of opinion and experience. The first number now at hand promises well.

NOTES FROM WASHINGTON.

The Tariff Issue in National Politics.—Stamped Boiler Iron, Hoop Iron and Cotton Ties.

(From Our Own Correspondent.)

WASHINGTON, D. C., June 30, 1880.

The pronounced position taken by the Democratic Convention in its promulgation of party principles for the Presidential campaign, in declaring in favor of tariff for revenue only, causes much surprise at the Congressional Committee headquarters here. They had looked for a more ingenious presentation of this vital issue between the two parties, one which has figured so conspicuously in the political campaigns of more than three-quarters of a century, in order to cover the protective proclivities of New York, Pennsylvania, New Jersey, Connecticut, Massachusetts, Rhode Island, Delaware and Maryland, and the growing sentiment in this direction in Ohio, West Virginia, Tennessee, Georgia, Alabama and Louisiana, as well as the free trade and tariff reform notions generally of the West and South. It is feared that this enunciation of anti-tariff sentiment will operate injuriously in the States named, and will strengthen the Republican party in New York particularly, where the real Presidential battle will be fought. General Hancock, while he has no record on this subject, has, it is announced, in private letters received here, subscribed to all the articles of the Democratic faith for the campaign of 1880, and has also stated his approval in recent interviews with the party leaders. As a native of Pennsylvania, it was supposed that he would incline to a tariff that would protect her industries. He has said, however, that, in dealing with this subject, in the event of his election, he will be governed by the prevailing sentiment of the party who elect him.

The Supervising Inspector General of Steam Vessels, General Damont, is in constant receipt of complaints, from different manufacturers of boiler iron, respecting the evasion of the laws and regulations governing the United States steamboat inspection service, requiring certain standards of iron to be used in all boilers on steam vessels plying on navigable waters of the United States within the meaning of the statute.

In a recent communication from Assistant Secretary French to Mr. Thomas Moorehouse, of Philadelphia, this question of the use of stamped iron in boilers is set forth. The reply of Mr. French is to a request that a boiler made of unstamped iron be tested and permission given for its use for marine purposes, in case the result of inspection should be such that it might be just used with safety. Mr. French says: "In reply you are referred to the following extracts from the Revised Statutes in relation to this subject. Section 4428 reads as follows: 'Every boiler manufactured to be used on steam vessels, and made of iron or steel plates, shall be constructed of plates that have been stamped in accordance with this title,' and section 4439, as follows: 'Every iron or steel plate used in the construction of steamboat boilers, and which shall be subject to a tensile strain, shall be inspected in such manner as shall be prescribed by the Board of Supervising Inspectors, approved by the Secretary of the Treasury.'" Mr. French adds that it will be seen from the foregoing that neither the department nor any member of the Steamboat Inspection Service has authority under the law to comply with the request.

Ex-Senator Scott, general solicitor of the Pennsylvania Railroad, was in the city yesterday in conference with the Secretary of the Treasury respecting the operations of the new law for the transportation of bonded goodby rail from ports of entry on the seaboard to certain designated cities inland at which a customs officer resides. The act of 1870 required the carrying companies as well as the shippers to give bonds. The new law requires only the carrying companies to give bonds, thus relieving individuals entirely from the inconvenience of giving bonds, and correspondingly increasing the facilities for the shipment of bonded goods. The new law authorizes the shipment of foreign ores to places of destination inland in open cars, greatly lessening the expense and delay in moving these ores, so much used with the home ores.

The cotton tie interest seems to be still agitated over the recent change of duty on cut hoop iron, and numerous letters are still being received at the department containing inquiries whether, under the ruling in the decision of April 17, 1880, respecting the duty on cut hoop iron bands of hoop iron cut to length and punched with holes at one end, are, when accompanied by buckles to be used with the bands of hoop iron as cotton ties, to be classed as manufacturers of iron not otherwise provided for, or as subject to the specific rates imposed on hoop iron.

In the instructions to collectors and other officers of the customs the secretary draws the distinction between cut hoop iron for cotton ties and simple cut hoop iron. He says in his ruling: "One description of cotton tie has a permanent stud, fastened in the end of the band, with corresponding holes in the other end. This article is considered by the department as being properly liable to the duty imposed on manufacturers of iron. Other bands of iron are imported for cotton ties which in no wise differ from similar merchandise imported as cut hoops, except, in fact, that they are punched to a greater extent, and are sometimes painted. The buckles are not attached to them as imported, and the buckles form a separate branch of manufacture. It is held that the bands of hoop iron before referred to, whether accompanied or unaccompanied by the buckles, are liable, under decision 4496, to the duty imposed on hoop iron."

METALLURGICAL NOTES.

ELECTROLYTICAL TREATMENT OF THE ALLOYS OF PRECIOUS METALS.

It may appear strange that, after electrolytic methods have been used so long and so successfully for the deposition of metals, and have found a place in the laboratory of the assayer, they have not hitherto succeeded in gaining a foothold in metallurgy proper. It is only within recent times that attention has been directed to a method which promises in the future to become a valuable aid in the cheap and complete separation of the metals. Herr E. André, of Coblenz, Germany, some time since turned his attention to this field, and his plans have been further developed and experimented with by Mr. Paul Holder, of this city, to whom we are indebted for some data on the subject. Obviously, the advantages of electrolytic separation, the purity of the metals produced, will tell more when precious material is under treatment, and it is to the solution of the problems there offered that Messrs. Holder and André have directed their efforts, and they expect to supersede the costly and inconvenient methods of parting hitherto employed for refining and purifying gold and silver alloys. The "retort" turned out by many of our mines by distilling the amalgam obtained during the process of amalgamation is often very impure, and the increase in the amount of base metals found generally in mines as greater depth is reached, threatens to swell the amount of this impure product considerably. Methods such as that proposed are, therefore, of growing importance. Herr André employs the current of a dynamo-electric machine, preferably among American machines the Weston, and uses as an anode directly the material to be treated. This anode consists of an elongated box of sheet lead, into which the impure alloy is filled, preferably in a granulated, finely divided state, thus affording a large surface. If necessary, this anode is incased in any suitable material to prevent the escape of fine metal. The cathodes, we are informed, consist, in certain cases, of a large number of copper wires, suitably spaced, suspended in a line parallel and close to the anode, the aim being to have a large working surface. When alloys containing copper are being treated, the solvent bath consists of one part of sulphuric acid diluted with 19 parts of

water, by measure, and other suitable alkaline or acid baths are employed according to circumstances. If silver forms a principal constituent of the alloy, its passage from the anode to the cathode must be prevented by the intercalation of equivalent quantities of metallic copper within a second diaphragm. The process is said to be in operation at the works of Messrs. Mason & Elkington, England, at Mansfield, Oker, Hamburg and Frankfort-on-the-Main, in Germany. A plant is to be put up in this country for working, per day, 1,000 pounds of silver bullion holding 50 per cent. of copper, for the American Electro-Metallurgical Company, now being organized in this city to take control of Messrs. André and Holder's patents.

REMOVING SULPHURIC ACID FROM FURNACE GASES.

In many processes of smelting, copper, silver, lead and other large amounts of sulphur are expelled in the shape of sulphurous acid, which is a source of much annoyance to inhabitants of the vicinity of the works. In this country it is only occasionally with gold and silver smelting establishments, located in populous districts, that the protests against the "nuisance" cause embarrassment to their owners. The question has not yet, therefore, assumed in this country the attention which it has for many years claimed abroad, both on the Continent and England. The experience there gained may, however, prove valuable to those who are called upon to grapple with the problem in this country. Prof. Winkler, of Freiberg, has reported recently the results of a series of trials made at the Schneeberg Ultramarine Works to remove from the furnace gases of that establishment the sulphurous acid contained in it, ranging from 0.3 to 2 per cent. After a series of highly interesting though unsuccessful trials, from a commercial point of view, the following was adopted as being at once the cheapest and the most effective, as shown by two years' steady work: Three large chambers are filled with coarse fragments of limestone, offering a very large surface, over which copious amounts of water are run uninterruptedly. The gases ascend through the limestone, the water absorbing the sulphurous acid. Various salts of lime are formed which, owing to the large amounts of water present, are carried off by it, so that the action of the limestone is not impeded by incrustations. The gases are drawn through the chambers by a ventilator. At least 90 per cent. of the sulphurous acid is thus absorbed, the percentage being reduced from 0.360 per cent. by volume to 0.039 per cent.

MALLEABLE NICKEL.

Dr. A. Fleitmann of Iserlohn, Germany, writing to the *Berg u. Hütten. Zeitg.*, gives the most detailed account yet published in regard to his well-known method of making malleable nickel and cobalt by the addition of magnesium. Herr Fleitmann has found that nickel containing zinc is, to a certain degree, malleable, and that such an alloy can be rendered malleable by smaller proportions of magnesium. In order to make the nickel zinc alloy, the pure oxide of nickel is very thoroughly mixed with 5 per cent. of oxide of zinc, the whole being reduced to metal which contains about 4 to 5 per cent. of zinc. The presence of zinc is said to act upon the nickel in a remarkable manner, a malleable metal being produced even without the addition of magnesium. It is likely that the brittleness of melted nickel is due to the presence of some oxygen, and that both magnesium and cyanogen act by forming volatile cyanides, and possibly by decomposing any carbonic oxide present. After the addition of 1-20th per cent. of magnesium, the nickel zinc alloy is claimed to become completely malleable, and to be capable of being welded both to nickel, and to iron and steel. Messrs. Fleitmann & Witte have rolled sheet nickel 2 feet wide and have turned out nickel-plated sheet iron or steel. Thicker plates of nickel are welded to the iron or steel plates, heated to a high temperature, and are rolled out together in the ordinary way without scaling off. It should be noted that steel sheets thus nickel-plated cannot be hardened. The nickel-plated sheets are said to take a fine polish.

A REMARKABLE BLAST FURNACE RECORD.
Under date of June 18, 1880, Mr. Willard Warner, president and manager of the Tecumseh Iron Company, Tecumseh, Cherokee County, Alabama, writes as follows: "To-day we enter the sixth year of the Tecumseh Furnace's continuous blast in one hearth. The stack, a charcoal furnace, 60 x 12, was built in 1873 and put in blast February 10, 1874. Since then it has made only one stop, which was from April 5 to June 19, 1875, to put in a new hearth. The furnace is worked by hot blast, and has a closed top. The ore is chiefly brown hematite, the product being 800 tons of foundry and mill pig per annum."

The Revolution in Buenos Ayres.

Our merchants in the South American trade do not yet observe any disturbance in business resulting from the outbreak of hostilities in the Argentine Confederation. As yet no orders have been countermanded, and vessels depart from New York to their accustomed ports; though it is expected that they will discharge at Monte Video, the port nearest to Buenos Ayres, should the blockade continue. Thus far the advices received respecting the war have been by cable, but the mail now due from South American ports may bring correspondence of a different tenor.

The collision between Buenos Ayres and

SWEETLAND & CO.,

126 Union Street, New Haven, Conn.,

SOLE MANUFACTURERS OF

THE SWEETLAND COMBINATION CHUCK.

UNIVERSAL, INDEPENDENT AND ECCENTRIC.

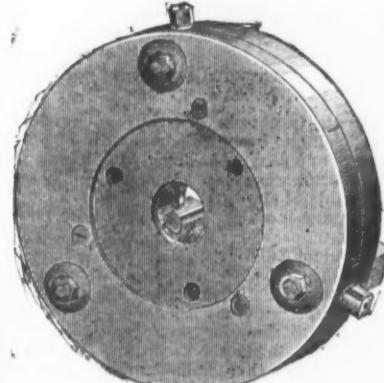


Fig. 5.—Back View.

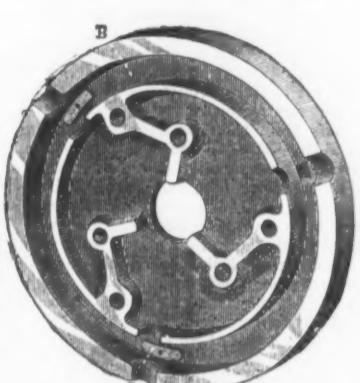


Fig. 2.—Back Plate.



Fig. 1.—Circular Rack.



Fig. 3.
Cam Block and Spring
Washer.



Fig. 3.

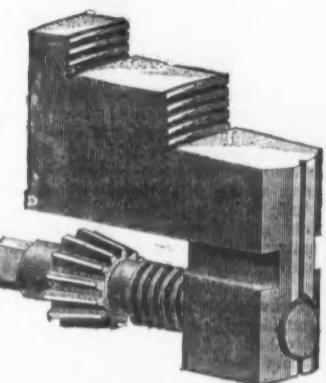


Fig. 4.—Improved Jaw.

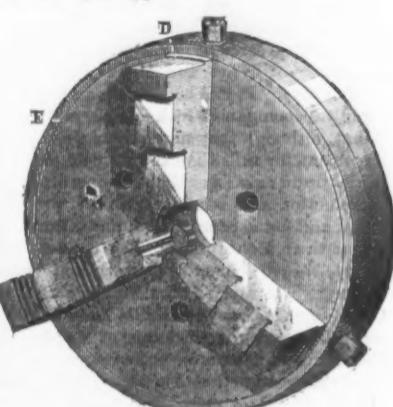


Fig. 6.—Front View.

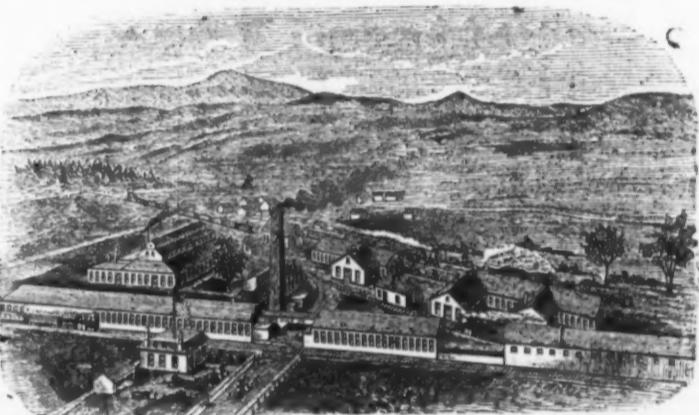
Price List and description furnished upon application.

THE IMPROVED HOWE SCALES.

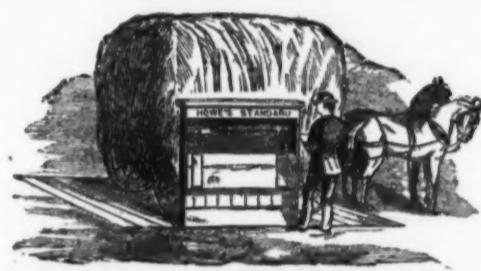
Made in Every



Variety



and Adapted to any



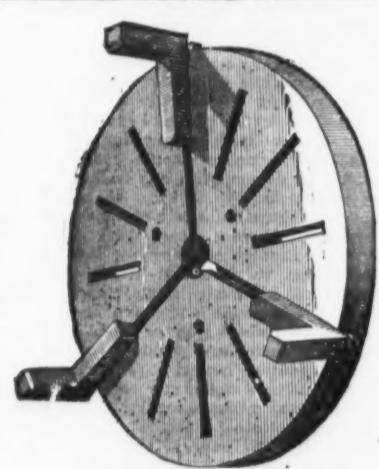
Standard.

The highest Awards have invariably been given the Improved Howe Scales wherever exhibited in competition with other makes.

OFFICES:

PAGE, FARGO & CO., 325 Broadway, New York.
PAGE, FARGO & CO., 213 Market Street, Philadelphia.

BORDEN, SELLECK & CO., 97 Lake Street, Chicago.
J. FRED. DENNIS, 8 & 9 Holborn Viaduct, London.



Front View.

THE E. HORTON & SON CO.,

MANUFACTURERS OF

THE HORTON LATHE CHUCK



Back View.

THE HORTON CAR WHEEL CHUCK.

This cut represents the Horton Car Wheel Chuck holding a car wheel in proper position for boring, the flange and tread of the wheel assuming a true position on the jaws. For accuracy and ease of operation this Chuck has no equal.

Windsor Locks, Conn., U. S. A.

THE HARTFORD MACHINE SCREW CO.:

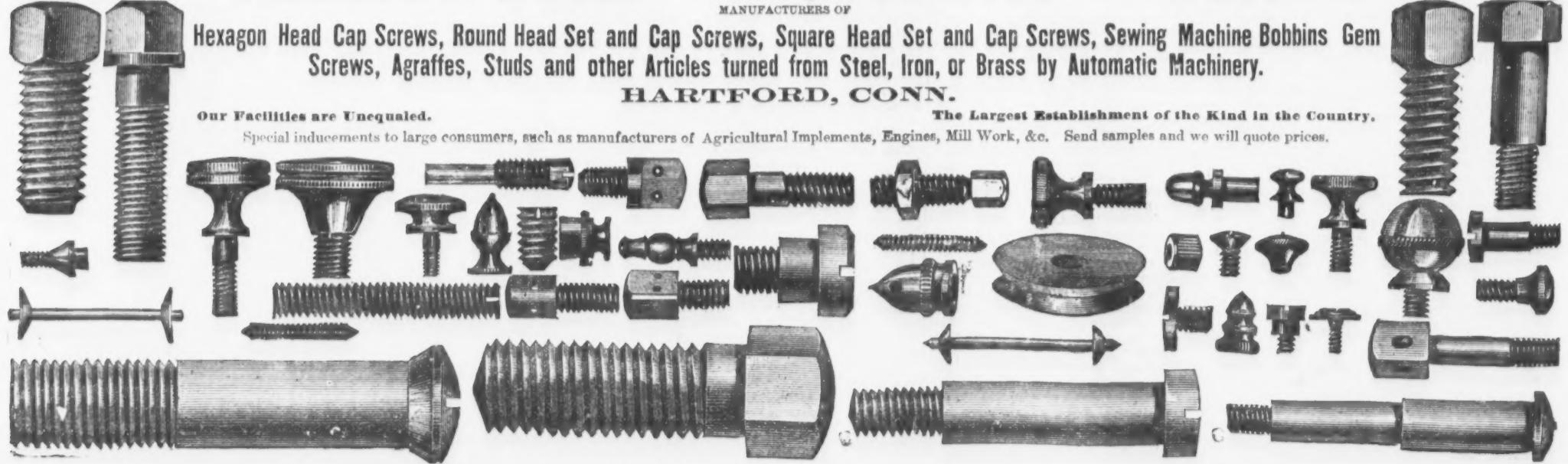
MANUFACTURERS OF

Hexagon Head Cap Screws, Round Head Set and Cap Screws, Square Head Set and Cap Screws, Sewing Machine Bobbins Gem Screws, Agraffes, Studs and other Articles turned from Steel, Iron, or Brass by Automatic Machinery.

HARTFORD, CONN.

The Largest Establishment of the Kind in the Country.

Special inducements to large consumers, such as manufacturers of Agricultural Implements, Engines, Mill Work, &c. Send samples and we will quote prices.



READING HARDWARE CO.'S NEW APPLE PARER, "THE GEM."

In addition to our regular line of Apple Parers for the present season, we have placed in the market

AN ENTIRELY NEW MACHINE, THE GEM.

and among its merits the following are deserving of notice:

In its construction SIMPLICITY OF ARRANGEMENT is combined with EFFICIENCY OF OPERATION.

Though of small size, all the ADVANTAGES of larger Parers, including the "PUSH OFF," are found in its superior mechanism.

It takes off A VERY THIN PARING, and performs the operation thoroughly, without regard to the size of the apple, whether large or small.

Great care being exercised in its manufacture, all the parts will be found to work well together, and no disarrangement or breaking while in use need be apprehended.

We again take pleasure in announcing to the trade that our

IMPROVED '78 READING APPLE PARER. WITH ADJUSTABLE CURVED KNIFE,

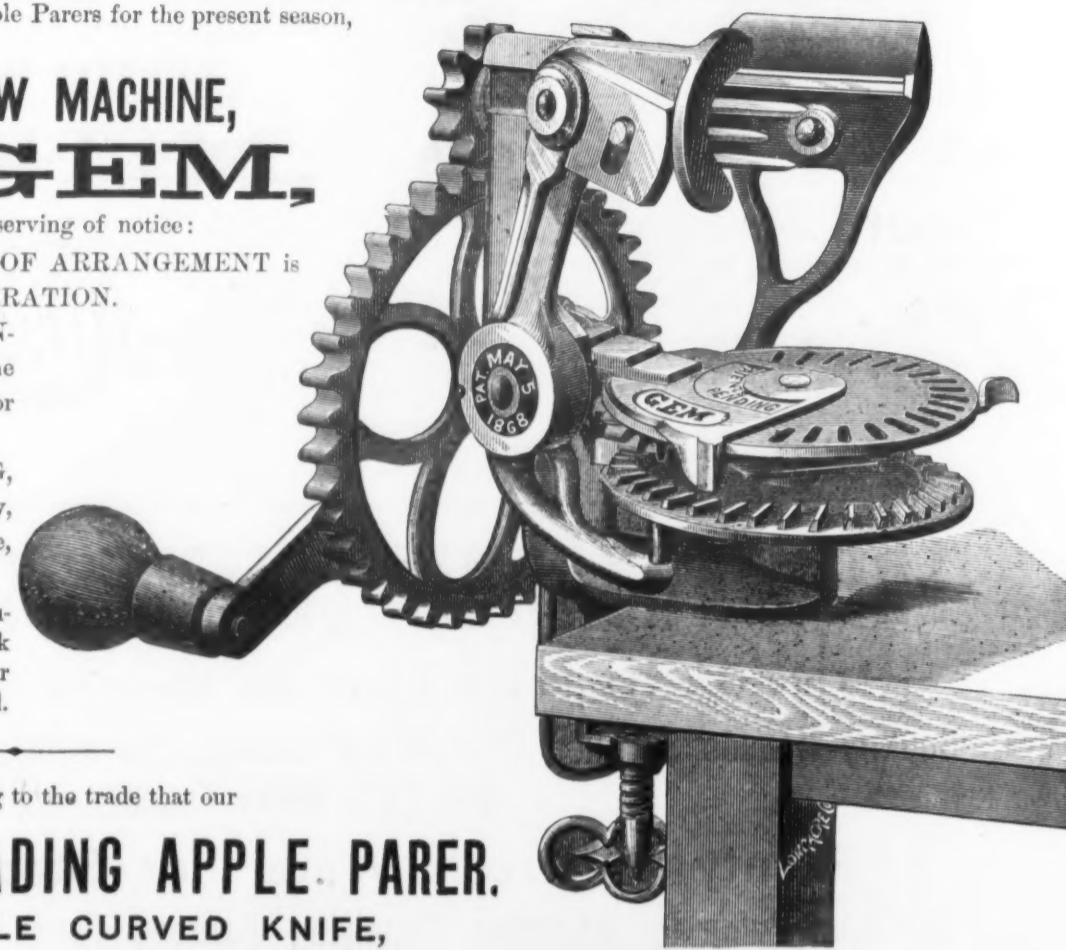
Now ready for the market, has many and great advantages over the Parer manufactured and sold last season. The following are deserving of notice:

The large knife is now made of a CURVED SHAPE, which enables it to pare much more effectively, without regard to the SIZE OF THE APPLE, whether LARGE or SMALL, and can be so adjusted by merely MOVING THE KNIFE, so as to regulate the THICKNESS of the paring to be taken off.

The peculiar shape and position of the EXTRA KNIFE renders it able to remove ALL PARINGS from the BASE of the apple before the operation of the principal knife.

Being attached to the body of the parer, WITHIN the large crank wheel, the small wheels are in their action MORE DIRECT, and REVERSE MOVEMENTS are prevented by the RATCHET ATTACHMENT.

Manufacturers of the '72, '74 and '75 Reading Apple Parers, whose well-known reputation will be maintained as in the past.



All the parts of the machine, including the handle, are adjusted and READY FOR USE, thereby avoiding the necessity and trouble of putting it together when required.

Requiring less material and an approximately lower cost in its manufacture, it can be sold at a REDUCED PRICE.

Packed one each in a paper box, one dozen boxes in a wooden case.

To the trade we would say: If you want a parer that

Will Sell Well and Give Satisfaction,

ONE THAT COMBINES

**Neatness of Design,
Superiority of Finish,
Rapidity of Execution
AND**

Efficiency of Operation,

Try "THE GEM,"

And you will not be disappointed.

The body of this Parer and the different parts are MADE HEAVY and STRONG, with an ADDITIONAL PLATE to the clamp to secure it more firmly in position, the whole being of the most durable character, calculated for LONG and STEADY USE.

With a movement steady and uniform it takes off a very thin paring, and by the IMPROVED LENGTH of the push-off entirely removes the pared fruit WITHOUT HANDLING.

The machines are now coated with a NEW PREPARATION, which allows MORE FREEDOM of the working parts, and WITHOUT THE OBSTRUCTION UNAVOIDABLE by the old process of finishing.

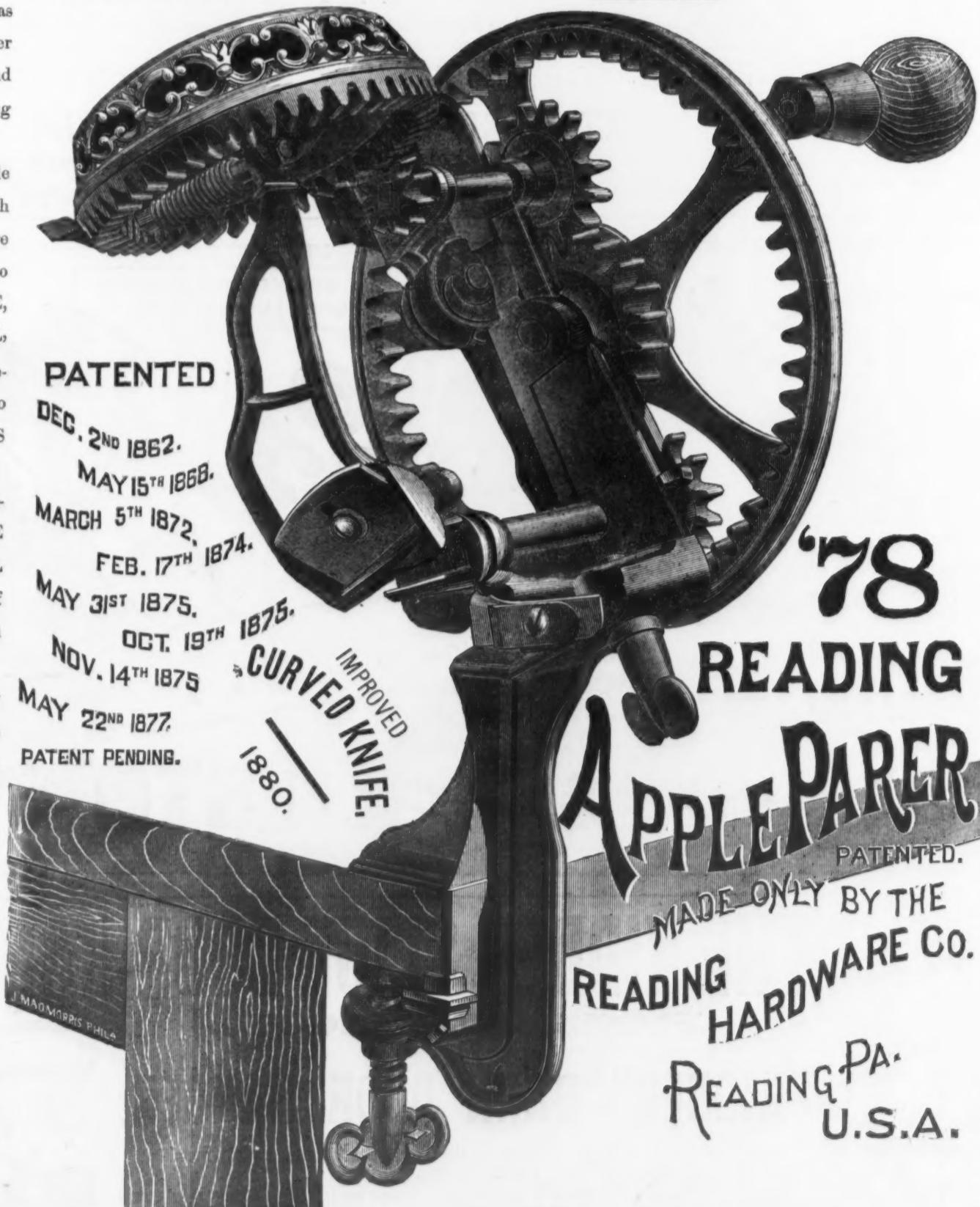
The SQUARE SHAFT prevents TURNING in the wheels of the machine, and each part being NUMBERED can be supplied.

Each machine is packed separately in a paper box, and one dozen boxes in a wooden case.

Also, a complete line of Bronze Metal, Bronzed Brass and Japanned Hardware of the most approved design and every variety of finish, with a full assortment of Stationery Goods.

With a determination to maintain our position as Apple Parer manufacturers, we shall supply the trade with machines calculated by their careful construction to give satisfaction, and thereby avoid all cause of complaint from their customers.

For prices and terms, address



READING HARDWARE COMPANY, Reading, Pa., U. S. A.

July 1, 1880.

THE IRON AGE.

19



HALL'S PATENT DOUBLE COMPOUND LEVER CUTTING NIPPERS.

NEAT, HANDY, POWERFUL AND DURABLE.

Manufactured by

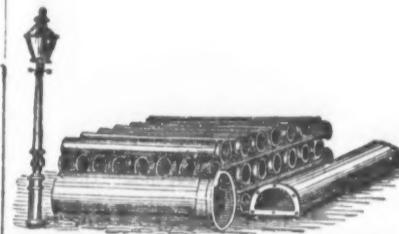
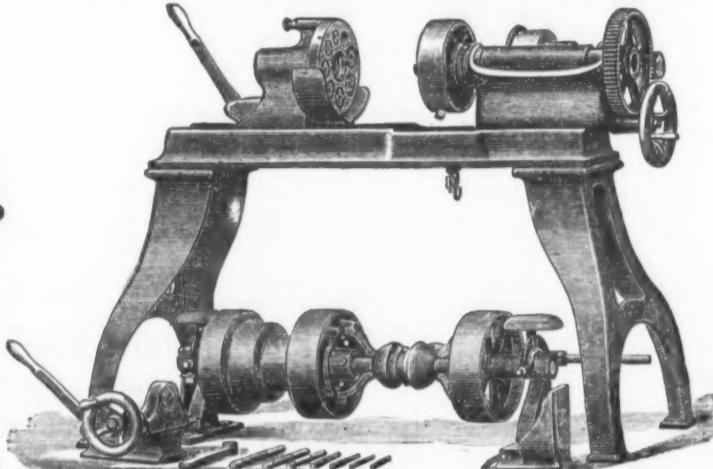
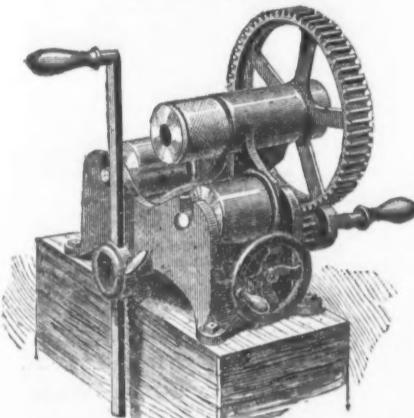
THE INTERCHANGEABLE TOOL COMPANY, of New York.

Manufacturers of Special Tools and Machines on the Interchangeable System.

All orders should be addressed to

A. GUSTAM, Gen'l Agent, 32 Howard St., New York.**WILEY & RUSSELL MFG. CO.,**
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LIGHTNING SCREW-CUTTING MACHINERY and GREEN RIVER TOOLS.



R. D. WOOD & CO.
Philadelphia,
Manufacturers of
Cast Iron Pipe
FOR WATER AND GAS.
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400 CHESTNUT STREET.

Send for Illustrated Price List.

Agents in London, Eng., Messrs. SELIG, SONNENTHAL & CO.

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Manufacturers of the well-known brands of

**German Steel, Cast Steel and Silver
Steel Grass Scythes.**

ALSO THE

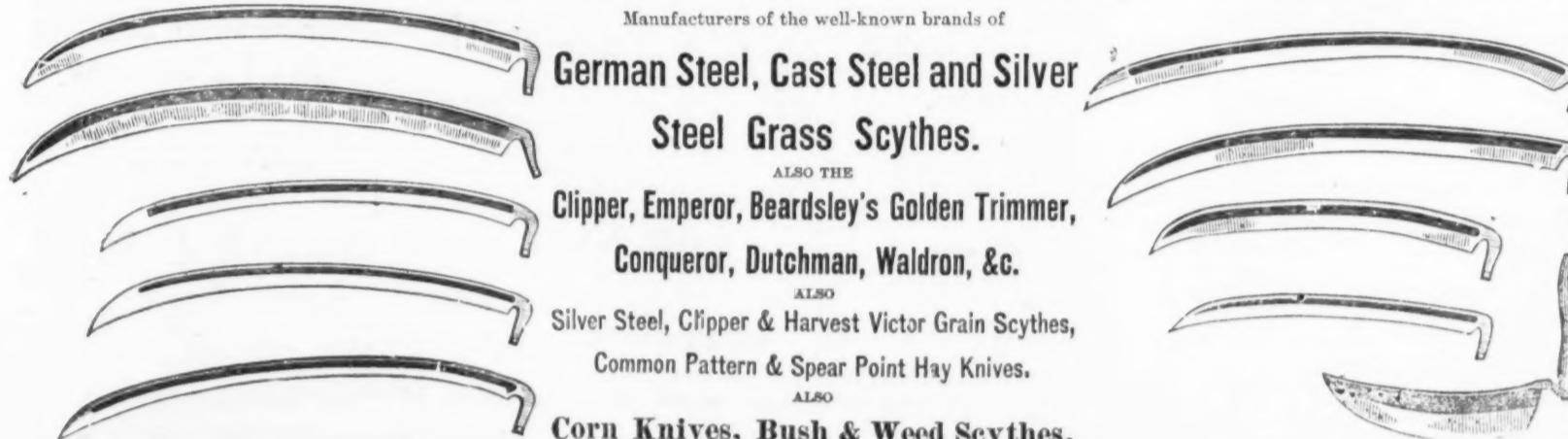
Clipper, Emperor, Beardley's Golden Trimmer,
Conqueror, Dutchman, Waldron, &c.

ALSO

Silver Steel, Clipper & Harvest Victor Grain Scythes,
Common Pattern & Spear Point Hay Knives.

ALSO

Corn Knives, Bush & Weed Scythes.



10,000 Sold the First Year.
**THE BEST ADJUSTABLE BAG HOLDER
In the World.**

PRICE ONLY \$1.50.

Sent free, on receipt of the price, anywhere in the United States.

It is made of iron, will fit any sack, wide or narrow, and will last a lifetime. Sold by Hardware and Agricultural Implement dealers everywhere. A large discount to job trade and agents. Your orders respectfully solicited, and agents wanted for this best selling article in the market.

Address,

L. JEFF. SPRENGLE,
Sole Manufacturer,
Ashland, Ohio.Who would do without it for \$1.50.
The platform does not go with the holder; it is extra if wanted.

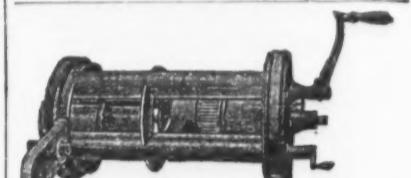
The Most Durable and Best Selling
Bucket for Chain Pumps.

It has no valves to become obstructed and no screw joints to become immovable by rust.

Advantages of the Crosby Bucket over all others:



No charge for territorial rights. Send for Price List. Agents wanted in every county. Address A. D. CROSBY, Patentee and General Agent, Cuba, Allegany Co., New York.



**FLANDER'S PATENT IMPROVED
CRANK PIN MACHINE,**
For turning off Crank Pins in position and while the wheels are under the engine. No railroad company should be without it. Manufactured and for sale in the

L. B. FLANDERS MACHINE WORKS,
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Descriptive circular on application.

TACKLE BLOCKS.
Rope and Iron Strap of all kinds. Lig. numivite Wood for Ten-Pin Balls.

Wm. H. McMillan & Bro.,
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GEORGE W. BRUCE,
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Maynard's Planters' Yankee, Hilling and Bog Hoes, also Brades', Elwell's and others.
An unrivaled assortment.

John Carver,
MANUFACTURER OF
CAULKING IRONS,
Cotton, Freight and Hay Hooks,
No. 44 North Third Street,
Near First, BROOKLYN, N. Y.

BRASS PADLOCKS.
GREATLY IMPROVED.

For simplicity, compactness, durability, convenience and security they have no equal. Appreciated by all who use them. The best and most economical Padlock for all uses extant. Springs now made of the celebrated Phosphor-Bronze. We make these Locks with Master Keys when so ordered. Largely used by the U. S. Government, Railroads, Corporations, &c.

D. K. MILLER LOCK CO.,
821 Cherry Street, Philadelphia.

PERIN & GAFF MFG. CO.,
MANUFACTURERS OF
FLUTING MACHINES,
CAST BUTT HINGES,
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PICKS AND MATTOCKS,
SLEDGE HAMMERS,
FURNITURE CASTERS,
SAD IRONS,
MOLASSES GATES,
PIANO STOOLS, &c.
CINCINNATI, OHIO.

THE IMPROVED FAMILY EGG BEATER
Both Floats revolve, giving a perfect beater.



We take pleasure in calling the attention of the trade to our

Improved Family Egg Beater.

It is made the same as our former Beater, except that we use parallel round wires in place of the flat wire. It is more easily cleaned than the flat wire beaters. It is equal to any beater in the world, while the price is very low. We guarantee that the Improved Egg Beater is not an infringement on the Dover, or any other beater.

Our Cast Scissors and Shears are superior in shape, variety and finish to all others. We have added to our former line a great variety of nickel-plated Scissors and Shears, Nut Picks, Nut Crackers, Fruit Knives, &c.

We respectfully solicit the privilege of giving estimates on novelties in Brass or other metals, and on small iron castings.

SPECIALTIES.

Shade Fixtures in great variety.
Picture Nails, Knobs, Hooks, Cord Wire, &c.
Twine Boxes, Escutcheon Pins, Curtain Rings, Nutmeg Craters.

Recent Consular Reports.

The following information has been furnished by the Department of State:
The Charge d'Affaires of the United States at Berne has furnished a comparative table, published by the Swiss Bureau of Statistics, of the exportations from Switzerland to the United States from 1864 to 1879, inclusive. The increase of exports in 1879 over 1878 was 27.37 per cent. There was an increase in 1879 of 23 per cent., compared with the annual average from the years 1864 to 1878. The value of watches and their accessories exported was 52 per cent. below the average for the period of 1864 to 1869, though there was an increase of 28 per cent. over the average of the years 1876 to 1878. The American demand, in 1879, for Swiss watches and works amounted to but 5,292,000 francs in value, against an annual average of 11,000,392 francs in the previous 15 years. Embroideries exceeded by from 2,000,000 to 3,000,000 francs the large exportations of 1877 and 1878. There was also quite an increase in leathers. The present year gives promise of further improvement.

The Minister of the United States at Vienna, Austria, informs the department that the large and increasing emigration among the peasantry of Hungary is attracting public attention, and that the advisability of checking it, by granting public lands in Hungary to the destitute, is being discussed. The people in the region of the county of Garos are emigrating en masse. This spring over 3000 have gone from one county, of whom 1000 have left their families and 500 were held to render military service. Petitions for its restriction are being presented.

Mr. Denny, the Consul General of the United States at Shanghai, in a recent dispatch, states that an American manufacturing company has met with remarkable success in the introduction of their clocks in China. They sent out an agent with 400 or 500 cases of sample clocks, running six and twelve to the case, to establish a house at Shanghai, and within four days after he opened his sample rooms he had disposed of every one. The agent informed Mr. Denny that in the same time he could have sold at least 1500 or 1600 cases. Mr. Denny thinks that a large field is now open to American manufacturers in this particular article, and that with an earnest endeavor on their part to meet the wants of the Chinese market, they can control the trade.

The Consul of the United States at Tripoli has furnished the department with a report of the commerce of Tripoli for the quarter ending March 31, 1880. During that period the exports amounted in value to \$373,173.11, the imports to \$363,199.31. There were \$77,200 worth of cotton goods imported; \$19,686 of woolens; \$76,510 of cereals; \$23,211 of oil, and \$2386 of petroleum. American flour in small quantities was received. The wheat and barley crops are unprecedented. The commercial transactions were somewhat deranged, owing to the depreciation in metallic currency.

A railroad accident from a most singular cause happened last week at the bridge over the Scioto River, near Chillicothe, on the Dayton and South Eastern Railroad. A bridge watchman lay down beside the track and went to sleep with one arm over the rail. A gravel train backed down upon him, and the entire train was thrown off the track. Five men were thrown into the river, and 20 others into the debris of the wrecked train.

Special Notices.

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To further introduce the work, the Present Edition will be sold at half price, as follows:

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Currency may be sent by mail at publishers' risk.

Address: S. H. JENNINGS, Deep River, Conn.

JOHN E. SWAN & BROTHERS,

IRON MERCHANTS,

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Exporters of all brands of

Scotch & English Pig Iron.

c. f. i. to America and f. o. b. British ports.

Old Iron Rails, Puddled Bars

AND MANUFACTURED IRON.

ULSTER IRON.

100 bars best Ulster Iron, in 16-foot lengths, 2½ inches diameter, for sale at 2½c. per lb. by the bar, or 2½c. per lb. for the lot, free on board at Worcester, Mass.

FORSAITH & CO.,

Machinists and Machinery Dealers,

Manchester, N. H.

WANTED TO BUY,

A Hardware or Housefurnishing Store, for CASH. Will buy a new stock from the person who will find me a town to open in. State price. All will be kept confidential. Address

HARDWARE, Box 19.

Office of *The Iron Age*, 83 Reade St., New York.

HAMMACHER & DELIUS,

Hamburg, Germany,

62 Alter Wall,

Solicit correspondence with American Manufacturers and Inventors in regard to representation in European countries.

FOR SALE.

One second hand 250-lb. Steam Hammer. Make, Fern & Miles. Apply to

A. & P. ROBERTS & CO.,

265 South Fourth Street, Philadelphia.

FOR SALE.

STEAM ENGINE, five-horse power, upright,

separate bed, nearly new. Will sell cheap and on easy terms.

C. N. MARCELLUS & CO.,

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Special Notices.

A LARGE ASSORTMENT

OF
New and Second-Hand Machinery.

STEAM ENGINE MACHINERY.

One Delameter Sugar-house Engine, 26 in. x 48 in.

One Corliss 40 horse power, 16 in. x 24 in.

Five Horizontal Engines, new, 9 in. x 12 in.

Four " " 9 in. x 12 in.

One Portable Engine, 5 horse power.

One Horizontal Engine, 11 in. x 18 in., Whitehall & Hampson.

One Upright Engine, 16 in. x 16 in.

One Horizontal Engine, 15½ in. x 30 in., Todd & Raf-

One Upright Engine, 7 in. x 12 in.

One " " 5 ft. x 12 in. Boiler complete, 5 H. P.

One 25 h. p. Horizontal Engine and Upright Boiler.

One Boiler, 5 ft. x 12 in. Tubes.

Two " " 5 ft. x 12 in. ft. 100 x 24 in. Tubes.

One Vertical Boring Mill, bore from 26 to 90 inches.

One Shaper, 6-inch stroke. [columns]

One Turn Table and Boring Mill, 11 feet between Two Slabbing Machines.

One Lathe, 18 in. x 8 ft., Screw Cutting.

One " " 14 in. x 5 ft.

One Merrill Compressed Air Hammer, Hotchkiss Patent.

One Punch and Shears combined, will punch 1½ in.

One " " 1½ in. x 1-inch iron in the center 30 in.

One Large Shears, will cut ¾ in. any size.

Two Ensay Drills.

One New Haven Mach. Co. Drill, will bore in center 60 in.

One New Haven Mach. Co. Drill, will bore in center 30 in.

One New Haven Planer, 37 in. x 9 ft.

One " " 34 in. Planer for safes.

One Lathe, 18 in. x 30 in.

One " " 28 in. x 30 ft. "

One " " 16 in. x 7 ft. "

One Pattern Makers' Lathe.

One Planer, 42 in. x 16 ft.

One " " 26 in. x 6 ft.

One " " 24 in. x 5 ft.

One Crank Planer, 18 in. x 6 ft.

One Travis' Boring Machine.

Eighteen Drilling Machines.

One Root Blower.

One Bogardus Mill, No. 5.

One Palm Hand Shears, Pond's Patent.

One Large Power Punch for bridge work.

One 100-ton Hydraulic Press and Pump.

One Judgeon Beam Punch.

One Upright Drill, to bore center of 64 in.

One Hand Punch to the center of 36 in.

One " " smaller.

One hundred Vices.

PUMPS.

One Knowles Special Pump, No. 7.

One Woodward Steam Pump, No. 4.

One G. & G. Garrison Steam Pump, No. 3.

One Woodward Steam Pump, No. 2.

Six Hardick Steam Pumps, from No. 0 to No. 4.

J. GRAY'S MACHINERY DEPOT

37 Dey Street, New York, U. S. A.

To Car Builders, Iron Workers and others.**Large Manufacturing Establishment****FOR SALE OR LEASE,**

At a Great Bargain to a Good Party.

The Construction and Repair Shops formerly occupied by the Camden and Amboy Railroad Co. covering three acres of ground, located on the Delaware River at Bordentown, N. J.

Address BOARD OF TRADE for descriptive circular, Bordentown, N. J.

New or Second-Hand TOOLS WANTED.

A large assortment of Machinists' Tools, including large Boring Mill with two heads for turning.

Also, 60 feet of 8 or 9-inch Deck Beams.

Address, with full particulars and lowest cash price, P. O. Box 345, Chicago, Ill.

FOR SALE.

200 to 400 tons 45-lb T Rail, slightly worn and fit to relay.

50 tons second-hand 9-inch Deck Beams.

10 tons second-hand 1½-inch Truss Rods, with nut at each end.

100 tons assorted Angles, 1 inch to 6 inch.

150 " " Channels, 1 inch to 15 inch.

250 " " Bar Iron, rounds, squares and flats. Apply to

A. & P. ROBERTS & CO.,

265 South 4th Street, Phila., Pa.

FOR SALE.

A works completely equipped for the manufac-

ture of Carriage Axles. Is well located in relation to coal and iron, also very accessible to market.

Address E. P. BULLARD,

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The Sherman Process Co.

9 Pemberton Square, Boston, Mass.

Issue Licenses to use the Process for the

Manufacture of Iron and Steel

In the Bessemer Converter, Crucible, Siemens Martin, Puddling, Blast and Cupola Furnaces.

The use of this Process improves the quality of the product, saves fuel and labor, and does not require any change in furnace or manner of working.

See page 17 of *The Iron Age* of Oct. 25th '87.

For Sale.

1250 TONS BLAENAVON STEEL RAILS,

50 pounds per yard, Sandberg's section, just landed in New York. Apply to

NAYLOR & CO.,

99 John Street, New York.

FOR SALE.

RICHMOND CUTLERY WORKS. Good Engine

and Boiler, Power Hammers, Punching Presses,

and all kinds of machinery generally used in a

cutlery and edge-tool manufactory. If sold soon

for cash will be sold at a great bargain. Address

RICHMOND CUTLERY CO.,

Richmond, Ind.

Bissell & Welles,

Wholesale Hardware Auctioneers,

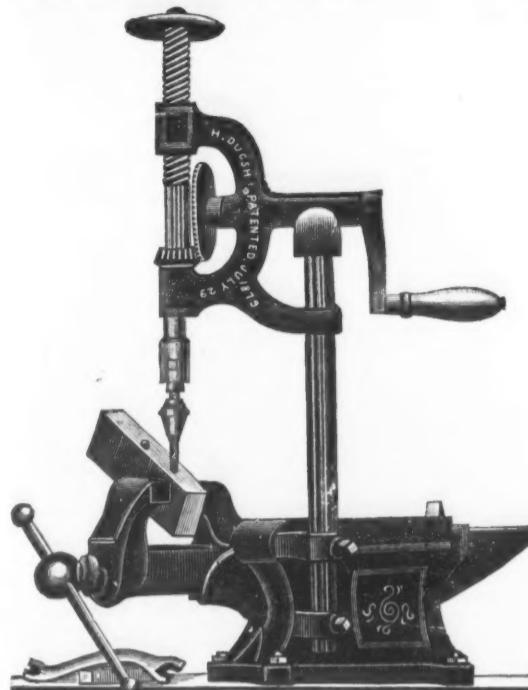
11. No. 62, L. J. Acorn Butts.....	.45
12. Loose Joint Acorn Butts, Nos. 68, 69.....	.55
13. New, No. 137, Loose Pin Butts.....	.75
14. No. 12, Loose Pin Butts, add new sizes as per new page 14. Also 25% in \$1.10.....	.50
15. No. 43, Loose Pin Butts, add new sizes as per new page 14, changing list of 4½ x 5 in. to \$6.50.....	.50
16. No. 46, Loose Pin Butts, add new sizes as per new page 14.....	.50
17. Parliament Butts.....	.45
18. Metal's Hinges.....	.45
19. No. 10, Loose Pin Butts.....	.45
20. New 16 B. No. 458, Boston Finish Butts, new page of August, 1878.....	.75
21. No. 472, Berlin Bronzed Butts.....	.65
22. No. 473, " " ".....	.55
23. No. 476, " " ".....	.60
24. No. 876, Bronze Metal Butts, change list as follows: Size... 3½ x 5½ 4 x 4 4½ x 4½ 5 x 5 Per pair, \$5.40 6.00 6.70 7.50 Size... 5 x 6 5 x 7 5½ x 5½ 6 x 6 Per pair, \$12.80 13.00 13.80 15.00	.60
25. No. 875, Bronze Metal Butts, change list of 5½ x 5½ \$8.25 and 5 x 7 to \$9.75.....	.60
26. No. 886, Bronze Metal Butts.....	.55
27. No. 435, Berlin B. Dooze Pin Butts.....	.65
28. Add new size, 3½ x 4 in., \$2.00	
29. No. 834, Bronze Metal Loose Pin Butts.....	.60
30. No. 432, Nickel-Plated Cap Butts.....	.65
31. No. 431, Loose Pin Surface Butts.....	.50
32. No. 832, " " ".....	.60
33. Inside Shutter Hinges.....	.45
34. No. 597, Parliament Butts, change list of 1½ x 2½ in. to \$4.50.....	.40
35. No. 700, Parliament Butts, change list of 1¾ x 2½ in. to \$6.75.....	.30
36. Refrigerator Hinges.....	.30
37. Pin Hinges, No. 100.....	.35
38. Add No. 500, Brass Pin Hinges, same pattern as No. 100.....	.55
39. No. 500, Inch... 3 3½ 3 3½ Per dozen pairs \$3.00 3.50 4.00 4.50	
40. Croquet Box Hinges, \$1.00 per dozen.....	.45
41. S. & T. Hinges, page 30 A. A Revised List of S & T Hinges.....	.45
42. Sharp's Strap and T Hinges.....	.25
43. Galvanized S & T Hinges, change list.....	.60 & 10
44. Heavy strap... 6 8 10 12 14 in. Per lb... 38 21 35 33 32 cts. Ex. Heavy T... 6 8 10 12 in. Per lb... 38 36 35 33 32 cts.	
45. Galvanized Sharp's S & T Hinges.....	.60 & 10
46. No. 60, Fast Joint Plate Hinges.....	.60
47. Add No. 160, same style and sizes as No. 60... Net 6, 8, 10 and 12 in., per 100 lbs. \$6.50 7.50 8.50 9.50	
48. No. 62, Loose Joint Plate Hinges.....	.65
49. Add No. 162, same style and sizes as No. 62: 6, 8, 10 and 12 in., per 100 lbs. \$6.50; 14 in. and 16 in., per 100 lbs. \$7.50; 18 in., \$8.50	
50. No. 66, Hook Hinges.....	.60
51. Add No. 168, same style and sizes as No. 68: 8, 10 and 12 in., per 100 lbs. \$6.75; 14 in. and larger, per 100 lbs. \$7.50	
52. No. 78, Welded Hook Hinges.....	.60
53. No. 68, Heavy Hook Hinges, to be sold here after by weight: 8, 10 and 12 in., per 100 lbs. \$6.50; 14 in. and larger, per 100 lbs. \$7.50; 16 in., \$8.50	
54. No. 69, Hook and Eye Hinges.....	.60
55. Add No. 165, same style and sizes as No. 65: 8, 10 and 12 in., per 100 lbs. \$6.75; 14 in. and larger, per 100 lbs. \$7.50	
56. No. 69, Hook and Eye Hinges.....	.60
57. Add No. 168, same style and sizes as No. 68: 8, 10 and 12 in., per 100 lbs. \$6.75; 14 in. and larger, per 100 lbs. \$7.50	
58. No. 78, Welded Hook Hinges.....	.60
59. Improved Gravity Blind Hinges: No. 1, for wood, per doz. sets, \$3.50; No. 3, for brick, per doz. sets, \$5.35.	
60. Mackrell's Blind Fasts, list per doz. pairs....	.70
61. Drawers and Pins.....	.80
62. Turn Buckles.....	.75
63. Torrey and S. Door Springs.....	.75
64. Reversible Gate Hinges, change list of No. 127 to \$7.50.....	
65. Gate Hinges, No. 135, \$6.10.....	
66. Gate Latches, No. 65.....	.60
67. Barn Door Hangers, " Rollers	.55
68. New 50 A, Barn Door Rail, No. 67... Net 6, 8, 10 and 12 in., \$4.50	
69. Anti-Friction Hangers	.50
70. Barn Door Hangers, N. E. Pat., Nos. 33 to 36... Net 23 to 26, change list.	
71. Barn Door Hangers, N. E. Pat., Nos. 33 to 36... Net 23 to 26, change list.	
72. Coat and Hat Hooks of all kinds, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
73. Barn Door Hanger, list No. 23 to \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
74. Coat and Hat Hooks, No. 132, \$2.60... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
75. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
76. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
77. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
78. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
79. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
80. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
81. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
82. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
83. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
84. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
85. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
86. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
87. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
88. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
89. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
90. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
91. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
92. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
93. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
94. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
95. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
96. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
97. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
98. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
99. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
100. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
101. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
102. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
103. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
104. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
105. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
106. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
107. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
108. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
109. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
110. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
111. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
112. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
113. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
114. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
115. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
116. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
117. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
118. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
119. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
120. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
121. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
122. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
123. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
124. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
125. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
126. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
127. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1.40 1.80	
128. Coat and Hat Hooks, change list, No. 20, \$3.70... Net 23 to 26, change list as follows: Nos... 23 24 25 26 Nos... .70 1.10 1	

749. Braces, Ives' Novelty.....	.50
" " Centennial.....	.50
" " Centennial Ratchet.....	.50
750. Lathe Chucks and Bit Holders.....	.33 1/3
750. Whitney's Geared Drills.....	40 & 7/8
751. Breezy Drills, Nos. 1, 2, 3.....	1.0
" " Millers Falls, \$3.....	16 2/3
" " Nos. 21, 22.....	16 2/3
752. Boring Machines, change list.....	.25
Nos.25 .30 .35
New list, \$5.50 9.75 6.75 11.00	
753. Aiken's Awls, Nos. 10, 20.....	.45
" Extra Awls and Tools.....	.45
No. 120. Awls and Tools.....	.55
754. A. Phoenix Awls w/ Handles.....	Net
755. Handled Awls and Handles:	
No. 10. Handles, only.....	.35
Nos. 12, 14. Handled Awls, change list of No. 14 to \$9.....	.30
Nos. 12, 33, 34. Awls.....	.20
756. Handled Scratch Awls.....	.20
757. Sockit Scratch Awls.....	Net
758. Chalk Line Reels, change list to \$4.40 and \$1.....	.20
759. Rivet Sets and Punches.....	.20
760. Screw Driver Bits, list as printed.....	40 & 7/8
761. Countersink Bits, No. 8, \$1.45.....	.20
762. Wheeler's Countersinks, change list to \$3 and \$4.50.....	.20
763. No. 40. Compasses.....	.40
764. No. 50. Dividers.....	.40
765. No. 60. Calipers.....	.40
766. Calipers, Nos. 6, 6 1/2, 6 1/2.....	.40
767. Button Hliers.....	.20 & 7/8
768. S. & Co. Pliers.....	.25
769. Gas Pliers.....	.45
770. Lowell Hand Vises.....	.12
771. Stearn's Saw Vises, No. 3, \$16.....	.20
772. Common Lever Saw Sets, No. 30.....	.20
773. Smith's Gen. Set, change list of Nos. 20 to 27.....	.20
774. Stillman's Lever Saw Sets.....	.20
775. Leach's Saw Sets.....	.6
776. Aiken's Genuine Saw Sets.....	.50
" Pattern.....	.45
777. Weston's Bench Hooks.....	Net
778. Iron Spokeshaves.....	.25
779. Victor Spokeshaves and Box Scrapers.....	.20
780. Iron Scrapers, change list of Nos. 1 to 20.....	.33 1/3
781. Giant Nail Pullers.....	Net
782. Little Giant Tack Pullers.....	Net
783. Bailey's T Bevels and Try Squares.....	Void
784. Winterbottom's Try Squares.....	.45
785. Star Bevels and Try Squares.....	Void
786. 75¢, Measuring Tapes.....	.25
787. Pocket Tapes, Ass Skin Case.....	.25
788. Spring Pocket Tape.....	.25
789. " Nos. 220 to 226.....	net
790. Boxwood Rules.....	.55
791. IVORS.....	.45
792. Miscellaneous Rules.....	.45
793. Baileys' Planes.....	.20
794. B. Middleton Plane Irons.....	.20
795. Chapin's Planes, Common.....	.30
796. " Extra.....	.35
797. " with English Irons.....	.35
798. 78s, 79s, 80s.....	.25
799. Molding.....	.25
800. Flows.....	.25
801. 79s, 80s, 81s, 82s, 83s, 84s, 85s, 86s, 87s, 88s, 89s, 90s, 91s, 92s, 93s, 94s, 95s, 96s, 97s, 98s, 99s, 100s, 101s, 102s, 103s, 104s, 105s, 106s, 107s, 108s, 109s, 110s, 111s, 112s, 113s, 114s, 115s, 116s, 117s, 118s, 119s, 120s, 121s, 122s, 123s, 124s, 125s, 126s, 127s, 128s, 129s, 130s, 131s, 132s, 133s, 134s, 135s, 136s, 137s, 138s, 139s, 140s, 141s, 142s, 143s, 144s, 145s, 146s, 147s, 148s, 149s, 150s, 151s, 152s, 153s, 154s, 155s, 156s, 157s, 158s, 159s, 160s, 161s, 162s, 163s, 164s, 165s, 166s, 167s, 168s, 169s, 170s, 171s, 172s, 173s, 174s, 175s, 176s, 177s, 178s, 179s, 180s, 181s, 182s, 183s, 184s, 185s, 186s, 187s, 188s, 189s, 190s, 191s, 192s, 193s, 194s, 195s, 196s, 197s, 198s, 199s, 200s, 201s, 202s, 203s, 204s, 205s, 206s, 207s, 208s, 209s, 210s, 211s, 212s, 213s, 214s, 215s, 216s, 217s, 218s, 219s, 220s, 221s, 222s, 223s, 224s, 225s, 226s, 227s, 228s, 229s, 230s, 231s, 232s, 233s, 234s, 235s, 236s, 237s, 238s, 239s, 240s, 241s, 242s, 243s, 244s, 245s, 246s, 247s, 248s, 249s, 250s, 251s, 252s, 253s, 254s, 255s, 256s, 257s, 258s, 259s, 260s, 261s, 262s, 263s, 264s, 265s, 266s, 267s, 268s, 269s, 270s, 271s, 272s, 273s, 274s, 275s, 276s, 277s, 278s, 279s, 280s, 281s, 282s, 283s, 284s, 285s, 286s, 287s, 288s, 289s, 290s, 291s, 292s, 293s, 294s, 295s, 296s, 297s, 298s, 299s, 300s, 301s, 302s, 303s, 304s, 305s, 306s, 307s, 308s, 309s, 310s, 311s, 312s, 313s, 314s, 315s, 316s, 317s, 318s, 319s, 320s, 321s, 322s, 323s, 324s, 325s, 326s, 327s, 328s, 329s, 330s, 331s, 332s, 333s, 334s, 335s, 336s, 337s, 338s, 339s, 340s, 341s, 342s, 343s, 344s, 345s, 346s, 347s, 348s, 349s, 350s, 351s, 352s, 353s, 354s, 355s, 356s, 357s, 358s, 359s, 360s, 361s, 362s, 363s, 364s, 365s, 366s, 367s, 368s, 369s, 370s, 371s, 372s, 373s, 374s, 375s, 376s, 377s, 378s, 379s, 380s, 381s, 382s, 383s, 384s, 385s, 386s, 387s, 388s, 389s, 390s, 391s, 392s, 393s, 394s, 395s, 396s, 397s, 398s, 399s, 400s, 401s, 402s, 403s, 404s, 405s, 406s, 407s, 408s, 409s, 410s, 411s, 412s, 413s, 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746s, 747s, 748s, 749s, 750s, 751s, 752s, 753s, 754s, 755s, 756s, 757s, 758s, 759s, 760s, 761s, 762s, 763s, 764s, 765s, 766s, 767s, 768s, 769s, 770s, 771s, 772s, 773s, 774s, 775s, 776s, 777s, 778s, 779s, 780s, 781s, 782s, 783s, 784s, 785s, 786s, 787s, 788s, 789s, 790s, 791s, 792s, 793s, 794s, 795s, 796s, 797s, 798s, 799s, 800s, 801s, 802s, 803s, 804s, 805s, 806s, 807s, 808s, 809s, 810s, 811s, 812s, 813s, 814s, 815s, 816s, 817s, 818s, 819s, 820s, 821s, 822s, 823s, 824s, 825s, 826s, 827s, 828s, 829s, 830s, 831s, 832s, 833s, 834s, 835s, 836s, 837s, 838s, 839s, 840s, 841s, 842s, 843s, 844s, 845s, 846s, 847s, 848s, 849s, 850s, 851s, 852s, 853s, 854s, 855s, 856s, 857s, 858s, 859s, 860s, 861s, 862s, 863s, 864s, 865s, 866s, 867s, 868s, 869s, 870s, 871s, 872s, 873s, 874s, 875s, 876s, 877s, 878s, 879s, 880s, 881s, 882s, 883s, 884s, 885s, 886s, 887s, 888s, 889s, 890s, 891s, 892s, 893s, 894s, 895s, 896s, 897s, 898s, 899s, 900s, 901s, 902s, 903s, 904s, 905s, 906s, 907s, 908s, 909s, 910s, 911s, 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EXPORTS

Of Hardware, Iron, Machinery, Metals, &c., from the Port of New York, for the Week ending June 29, 1880:

Hamburg.	Quan. Val.
Zinc, cks.	3 \$1.51
Ptln, gals. 317,719 \$43,715	Nails, kegs. 32 151
Sew. ma. cs. 1,304 23,977	Iron, pkgs. 33 258
Wear. cs. 59 2,152	Ag. imp., pkgs. 53 938
Mach. pkgs. 25 1,542	Brass gds., cs. 4 114
Ag. imp., pkgs. 25 2,022	S. w. appr., pkgs. 12 600
Bolters, cs. 7 250	Beltng. bals. 9 493
Mf. iron, pkgs. 188 1,710	
Tin, bxs. 2 90	
Glassware, cs. 5 70	Hdws., cs. 81 1,476
Emery whl. cs. 2 299	Mach. oil, bbls. 76 3,131
Tel-pins, cs. 1 1,140	Sew. ma. cs. 33 1,592
Q'silver, flasks. 10 371	Mach. oil, bbls. 42 1,340
Bremen.	Mach. oil, cs. 80 258
Ag. imp., pkgs. 195 3,251	Iron, pces. 8 70
Hdw. cs. 27 687	Hoops, bds. 132 2,028
Ptln., gals. 334,800 33,400	Seales 9 548
Mach. cs. 7 320	Mf. iron, pkgs. 15 1,303
Silverware, cs. 750 1, safe. 3 600	Glassware, cs. 41 309
Mf. iron, pkgs. 32 412	Ag. imp., pkgs. 2 100
Aarhus.	Mach. oil, cs. 20 1,200
Ptln. gls. 1,436,000 17,900	Nails, kegs. 126 300
Rotterdam.	Ptln., gals. 17,000 2,150
Hdw. cs. 19 347	Cuttery, cs. 50 700
Statnare, cs. 1 55	
Asm. iron, pkgs. 16 940	Venezuela.
Sew. ma. cs. 201 2,400	Glassware, cs. 1
Mach. cs. 7 320	Brass gds., cs. 1 98
Bremen.	
Ag. imp., pkgs. 195 3,251	
Hdw. cs. 27 687	
Ptln., gals. 334,800 33,400	
Mach. cs. 7 320	
Silverware, cs. 750 1, safe. 3 600	
Mf. iron, pkgs. 32 412	
Aarhus.	
Ptln. gls. 1,436,000 17,900	
Rotterdam.	
Hdw. cs. 19 347	
Statnare, cs. 1 55	
Asm. iron, pkgs. 16 940	
Sew. ma. cs. 201 2,400	
Mach. cs. 7 320	
Bremen.	
Ag. imp., pkgs. 195 3,251	
Hdw. cs. 27 687	
Ptln., gals. 334,800 33,400	
Mach. cs. 7 320	
Silverware, cs. 750 1, safe. 3 600	
Mf. iron, pkgs. 32 412	
Aarhus.	
Ptln. gls. 1,436,000 17,900	
Rotterdam.	
Hdw. cs. 19 347	
Statnare, cs. 1 55	
Asm. iron, pkgs. 16 940	
Sew. ma. cs. 201 2,400	
Mach. cs. 7 320	
Bremen.	
Ag. imp., pkgs. 195 3,251	
Hdw. cs. 27 687	
Ptln., gals. 334,800 33,400	
Mach. cs. 7 320	
Silverware, cs. 750 1, safe. 3 600	
Mf. iron, pkgs. 32 412	
Aarhus.	
Ptln. gls. 1,436,000 17,900	
Rotterdam.	
Hdw. cs. 19 347	
Statnare, cs. 1 55	
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Mf. iron, pkgs. 32 412	
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Hdw. cs. 19 347	
Statnare, cs. 1 55	
Asm. iron, pkgs. 16 940	
Sew. ma. cs. 201 2,400	
Mach. cs. 7 320	
Bremen.	
Ag. imp., pkgs. 195 3,251	
Hdw. cs. 27 687	
Ptln., gals. 334,800 33,400	
Mach. cs. 7 320	
Silverware, cs. 750 1, safe. 3 600	
Mf. iron, pkgs. 32 412	
Aarhus.	
Ptln. gls. 1,436,000 17,900	
Rotterdam.	
Hdw. cs. 19 347	
Statnare, cs. 1 55	
Asm. iron, pkgs. 16 940	
Sew. ma. cs. 201 2,400	
Mach. cs. 7 320	
Bremen.	
Ag. imp., pkgs. 195 3,25	

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This machine was first made by a practical mechanic for his own use, and to meet a want which nothing in the market would fill. It was so highly regarded by all who saw it that he was induced to get it patented and manufactured for the market. When it was brought to our attention we saw at once its great utility, and bought the exclusive right for the whole United States. We believe it will come into general use as fast as its merits become known. The anvil face is 18 inches, and height 8 inches. Width of vise jaw, 12 inches; steel drill press, with adjustable chuck to hold 1/4-inch drills, and all smaller sizes. The article to be drilled can be held firmly in the vise, as also to be drilled at any angle, as if it were large for the vise it can be drilled on the anvil. The drill may be removed when not in use. Price for the whole, \$18. Weight, 80 pounds. The vise and anvil are complete without the drill, and are sold for \$10; weight, 80 pounds. For all jobs, this machine is worth much more than its cost. Few men do with it many jobs, which otherwise would have to be sent to the shops. All hardware dealers who do not keep them in stock will furnish them on demand, or will send them on receipt of the price.

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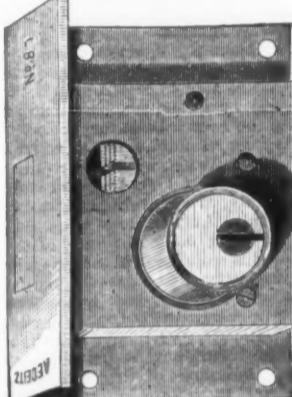
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Patent "Self-Adjusting" Railroad Track Scales, pronounced "the most accurate and durable" over all competitors at World's Fair, 1876. In use by Pennsylvania, Lehigh Valley, Baltimore and Ohio, and other Railroads. Patent Coal and Hay Scales. Warehouse scales for grain, coal, hay, &c., all purposes. Machines for testing materials, all sizes. Works, 9th st., at Master's Store, 52 S. 4th st. Phila. New York Office 9 Liberty Street.

TINIUS OLSEN & CO.,
STANDARD SCALES
AND
TESTING
MACHINES.

Manufacturers of Olsen's Little Giant Testing Machine, and Improved Railroad, Wagon and Furnace Charging Scales.

Office and Works, N. W. cor. 12th and

Buttonwood Sts., Philadelphia.

R. C. PURVIS,
Manufacturer of
Octagon
Tea Pots.

Rear of 407 Cherry St., Philadelphia, Pa.

Send for Price List.

Established in 1839.

Formerly L. & A. G. COES.

L. COES & CO.
Manufacturers of L. Coes'
GENUINE IMPROVED
AND MECHANICS
Wide Bar Full Length.

Patent Screw Wrenches

UNDER PATENTS DATED

JUNE 26, 1866,
MARCH 23, 1869,
REISSUED 1870.

NOVEMBER 10, 1863,
FEBRUARY 23, 1864,
REISSUED JUNE 1, 1869,
IMPROVED AUG. 1, 1877.

The back thrust when in use borne by the SHANK instead of the Handle

None genuine unless stamped "L. COES & CO."

WORCESTER, MASS.

Warehouse, 97 Chambers St. & 81 Reade St., N. Y.
DURRIE & McCARTY, Sole Agents.

HOLLAND PATENT PUMP.

The Best and Cheapest Article of the kind ever put upon the Market.

The Pump is a double force pump with two feet rubber hose brass nozzle and extra sprinkler attached. It is double-acting and will throw a continuous stream 50 to 60 feet.

FOR SALE BY

Lloyd, Supplee & Walton, Phila.
Durrie & McCarty, New York.
Simmons Hardware Co., St. Louis.

The Pennsylvania
LAWN MOWER

Has No Equal.

FOR SALE BY
Lloyd, Supplee & Walton, Phila.
Durrie & McCarty, New York.
Ames Plow Co., Boston.
Pratt & Co., Buffalo, N. Y.
Simmons Hardware Co., St. Louis.
Hamilton & Matthews, Rochester, N. Y.
Markly, Alling & Co., Chicago.
Ducharme, Fletcher & Co., Detroit.
Lockwood, Vandorn & Taylor, Cleveland.
Kruse & Bahlman, Cincinnati.
Pratt & Co., Elmira.
Lloyd & Clarke, La Crosse.
Smith & Scribner, Minneapolis.
Hart & Co., Louisville.

GREENFIELD TOOL CO.

(GREENFIELD CUTLERY CO.)

Greenfield, Mass., U. S. A.,

MANUFACTURERS OF



Fine Table Cutlery.

Solid Handled, Bone, Ivory, Rubber and Wood, Solid Steel Silver Plated.

PATENT CONCAVE FORGED OX SHOES.

Also, FLAT SHOES with
TWO CALKS at same price

ALSO,

PLANES, PLANE IRONS, &c.

ESTABLISHED 1836.

SHELTON & CO.,

Manufacturers of every variety of

TACKS & SMALL NAILS.

Carriage, Tire, Machine, Plow, Stove and Spring Bolts, Coach and Bed Screws, &c.

BIRMINGHAM, CONN.

Coulter, Flagler & Co., Agents, 87 Chambers Street, New York.

C. N. MARCELLUS & CO., No. 91 Liberty St., N. Y.

DEALERS IN

Mill, Machinists' and Engineers' Supplies and Manufacturers' Agents
for Albert Smith & Co.'s Wrought Iron Pipe; Cox's Malleable Iron Co.'s Gas, Steam and Water Pipe fittings; J. B. Hoyt & Co.'s Standard Belting; J. & Riley Carr's English Steel and "Dog Brand" Files and Raags; Elliott & Co.'s Set and Cap Screws and Taps; Crookford's Patent Ratchet Brace; Alden's Pure Turkish Emery; Howe's Double and Triple Acting Force Pumps.

Send for Catalogue and Price List.

of manufacturing at this point there is a fair amount of activity, and inquiries for new work promise lively times this fall. Merchant Iron is in good demand at \$2.30 as the minimum selling rate for Bar. There is little disposition to force sales on the part of either manufacturers or jobbers. Nails are fairly steady, and in pretty good request at \$3.25 rate for small lots, though to effect car-load sales a concession of 10¢ per kg is being made. Horse Shoes and Horse Nails are beginning to move at sellers' figures. There is less cutting in these goods this season than was the case last year and the year before. Consumers of Sheet Iron, remembering the difficulty experienced last year in getting supplies of stove-pipe and bread-pan Iron, are anticipating their wants by buying freely now. Nos. 26 and 27 Boiled find ready sale at \$4.10 and \$4.20 per 100 lbs., respectively.

CINCINNATI.

Messrs. E. L. HARPER & CO., under date of June 28, write as follows: A very satisfactory movement, particularly for this season of the year, has prevailed. Sales for the month will amount to more than double those of June last year. A general hopeful feeling prevails that the trade will be very satisfactory during the balance of the year. Our latest advices by cable from London report a considerable advance and notable firmness in Scotch Iron; also that Manufactured Iron was firmer, the demand for Steel Rails improving, and Old Rails firmer and had advanced.

FOUNDRY IRON.

No. 1 Hanging Rock Charcoal.....\$25.00 @ 20.00
No. 1 Southern.....24.00 @ 20.00
No. 1 Strong Coke.....24.00 @ 20.00
No. 1 Soft Stoncoal.....22.00 @ 23.00
No. 1 Open Silver Gray.....21.00 @ 22.00

GRAY FORGE.

Hanging Rock Charcoal.....\$25.00 @ 20.00
Neutral Coke.....24.00 @ 25.00
Cold Short.....21.00 @ 22.00

CAR WHEEL—MALLEABLE.

Hanging Rock, Cold-blast.....46.00 @ 47.00
Southern, Warm-blast.....40.00 @ 42.00
Lake Superior.....40.00 @ 41.00

ST. LOUIS.

Messrs. CARD & HOFFER, Pig Iron and Iron Ore Merchants, 417 Pine street, write us as follows, under date of June 26: There is a much better feeling in the market, occasioned by the fact that buyers are beginning to think that Iron is low enough, and can decline but little more. Considerable business is therefore doing. We quote:

HOT BLAST CHARCOAL.

Missouri.....\$25.00 @ 28.00
Southern.....23.00 @ 25.00
Hanging Rock.....25.00 @ 26.00

COKE AND COAL.

Missouri.....None offering
Southern.....22.00 @ 24.00
Ohio.....22.00 @ 24.00

COLD-SHORT.

21.00 @ 22.00
Red-short.....25.00 @ 28.00

CAR WHEEL IRONS.

Missouri.....40.00 @ 45.00
Southern.....45.00 @ 50.00
Ohio.....45.00 @ 50.00

IRON ORE—NOMINAL.

For fix.....10.00 @ 12.00
For furnace.....6.50 @ 7.50
Brown Hematites.....no market.

RICHMOND.

Mr. ASA SNYDER, Iron Merchant and Furnace Agent, writes as follows under date of June 28: No large sales to note. Stocks of consumers are small, and there are indications of a brisk business in July, probably at higher figures. Prices as follows:

Scott Pig Iron, according to brand.....23.00 @ 28.00
Am. Scott Pig Iron.....27.00 @ 29.00
American No. 1.....20.00 @ 27.00
" No. 2.....23.00 @ 25.00
" No. 3.....22.00 @ 24.00
Am. Mot. and White.....20.00 @ 22.00
Cold-blast Charcoal.....42.00 @ 46.00
Warm-blast Charcoal.....31.00 @ 34.00
Old Halls.....23.00 @ 25.00
Wrought Iron No. 1.....19.00 @ 21.00
Cast Machinery, No. 1.....18.00 @ 20.00
Richmond Refined Bar Iron, Stand'd.....2.6 @ 3.00
Horse Shoes, Tredegar.....2.4 @ 3.00
Mule.....2.5 @ 3.00
Old Dominion Nails, (standard size).....2.3 @ 3.00
For lots of 100 kgs, 10¢ per kg less.

NEW ORLEANS.

Messrs. MINNIGRODE & CO., dealers in Railway Supplies, 61 St. Charles street, write as follows under date of June 26: Transactions of the week have not aggregated in importance as predicted, but still they have been quite encouraging. Importations have ceased almost entirely, though we note large transactions in both old and new material in the interior. There is a firmer feeling and indications of activity for the coming week, and we think that the abyss between buyers and sellers is now so much lessened that there will be business of importance within the next week or two.

BALTIMORE.

R. C. HOFFMAN & CO., Iron and Commission Merchants, report the Fig Iron market as follows, under date of June 28: With a moderate demand for Iron, prices remain unchanged, and we continue last quotations, viz.:

Baltimore Charcoal Wheel Iron.....\$45.00 @ 46.00
Virginia.....45.00 @ 46.00
Anthracite No. 1.....24.00 @ 25.00
" No. 2.....23.00 @ 24.00
" No. 3.....21.00 @ 23.00
Mottled and White.....19.00 @ 20.00
Charcoal C. B. Blooms.....70.00 @ 72.00
" Billets.....70.00 @ 72.00
Refined Blooms.....55.00 @ 60.00

FOREIGN.

FRANCE.

Moniteur des Intérêts Matériels.
PARIS, June 13, 1880.—Metals.—Business is developing normally, but Metals have remained comparatively neglected. The market has been irregular. We quote: China Bar, 146.75 @ 15 francs the 100 kilos. Iron and Steel, 150.75 @ 16 francs. Tin. This metal has again been ill sustained. We quote: Banea, 192.50; Billiton, 190; Straits and Australian, 185.75; and English Refined, 191. Lead.—There has been a steady demand and market at 25.50 @ 26.50 francs. Spelter.—Quite a decline of 2 @ 3 francs has taken place, and it is quiet at close of 24.50 francs. The market has been weak. Owners of forges in the north of France have been compelled to lower rates in consequence of competition from Belgium, whence duty-paid Merchant Iron has been offered at 22 francs and T Iron at 23 delivered here. We quote at Paris, Merchant Iron, 29.50; Flooring, 24.50, and millimeter Sheet, 29.50. Makers are now facilitating business by meeting all charges, and are giving 10% discount.

solved to sell Merchant Iron as cheap as the Belgians, 22 francs the 100 kilos. In the Haute-Marne Charcoal Rolled Iron, first class, has been selling at 23 @ 25 francs. Coal.—The market is very quiet at Paris at 45 francs, delivered at residence. At the North and in the Pas de Calais there has been a slight increase, but nothing definite without any tendency toward a recovery. Week's shipments at St. Etienne on June 2, 1734 cars, against 601 and 4277 the preceding two weeks. Prices there have remained steady.

BELGIUM.

(Revue Universelle.)

BRUSSELS, June 13, 1880.—Iron.—The market is in no better position despite the efforts made to sustain prices; on the contrary, there has been a complete breakdown. Pig Iron offered at Charleroi at consumers' works at 5.75 francs. There is nothing transpiring in Luxembourg Pig, the blast furnaces are down to 100% capacity. Merchant Iron at 13 francs and Beams at 15 are selling with ease. Sheet Iron has become inactive and so have Railings. The steel works as a general thing also begin to feel the lack of orders and are now anxious to make engagements for October and later deliveries. The only exception is Steel for ships for which there is a demand. Rolling mills are taking orders on iron and manganese, and for their product firmly, while those differently situated sell between 2 and 3 francs the 100 kilos, cheaper. The consequence of this breakdown has been a general endeavor to make some important sales abroad, particularly in France, and this has again unsettled neighboring markets. After a while, things we hope will doubtless settle down again, but after such a long time out of the dull summer season we trust better times will again dawn upon us and indemnify us for the disappointments experienced since February last. The generally fine appearance of Continental grain and other crops will by that time begin to exercise some influence on trade here and elsewhere, when Iron will probably be one of the chief beneficiaries. Our market is very sturdy. At Liege there is a good run of orders established. There are looked upon as being well established at 8 @ 12 francs. At Charleroi all grades are wanted. Shipments are large all along.

GERMANY.

(Borsenblatt.)

DUISBURG, June 11, 1880.—Iron.—We receive the ensuing from Dortmund: "Although things still look gloomy here, many of our makers believe that bottom has been touched, inasmuch as the comparatively high price of Pig Iron and Coal in Luxembourg will prevent a further decline here. The majority of ironmasters are of a different opinion, however, and still hold out. In the midst of this diversity of opinion blast furnaces buy their raw material, and manufacturers and dealers their Iron, only to the extent of their more immediate requirements; hence no large dealings take place. It should be mentioned at the same time that there is again an increase of the price of Iron, and Coal in the Upper Rhine. Orders are sent to England to avail of the at present depressed prices there, and thus replenish stocks, which since the imposition of the duty have decreased almost to exhaustion. These stocks had been laid in before the duty went into operation. Coal mines will curtail production in this neighborhood." In the Saar district transaction in Iron diminished, wages of miners have been reduced in consequence. In the Upper Silesia trade in rolled Iron is insignificant. On the other hand, Sheet Iron is tolerably brisk. If no favorable general change soon occurs, prices there will soon recede to the lowest level previous to last fall's revival. The blast furnaces are better situated, inasmuch as their previous sales to the rolling mills are being delisted and paid for, while the latter are still able to command a good price. The coal there suffers from the difficulties which the shipments into Poland are subjected to, while in the Baltic ports English Coal is a competitor. Metals.—Business in metals during the week has come to a complete standstill almost. Lead is unaltered. We quote: English Pig, 16.30 marks the 50 kilos; cast Sheet, 16.00; German Pig, 15.80; and Spanish Lead, 18.00. Copper is quiet and steady. Drotzberg, Ingolstadt, Drontheim, Roros, Rossof, 74 @ 75; English Refined, 66 @ 67; ditto, Sheathing, 75. Tin is declining. We quote the range 79 @ 85. Spelter is unaltered at 19. Sheet Zinc, 25.20 @ 25.70 for usual numbers.

(Austrian Trade Journal.)

VIENNA, June 13, 1880.—Iron.—The iron market is as lifeless as heretofore. The influence of unfavorable accounts from abroad is now felt more than hitherto been the case. The only articles in active request are Sheet Iron and Sheet Steel, the latter in particular. The demand comes from England and the United States, filled by Northern Marcellin and Jungenberg companies. For Boilers the Hüttenberg Iron Company have also got a steady run of orders and important ones; also for Steam Cranes for Pöla and Trieste and Chains for Danubian navigation; furthermore, for 12 Boilers and 14 Steam Engines for the ventilation apparatus in the new Parliament building. Orders for iron Rail are not frequent. The railroads are 100% busy, and the Linz, Salzburg and Vorarlberg Railroad. The next adjudication will be for the iron bridges of the Pestemlin Railway line. We are inclined to think that competitors for the same will be the iron works at Teschen, Kladno and Zeitweg. The Inspector General of government railroads seems to intend introducing a wire cable tradition on the Alpine line. The English—Külding Co. likely to be favored with this important job. Iron works in Austria are moderately active in filling old orders; also for Steam Cranes for Pöla and Trieste and Chains for Danubian navigation; furthermore, for 12 Boilers and 14 Steam Engines for the ventilation apparatus in the new Parliament building. Orders for iron Rail are not frequent. The railroads are 100% busy, and the Linz, Salzburg and Vorarlberg Railroad. The next adjudication will be for the iron bridges of the Pestemlin Railway line. We are inclined to think that competitors for the same will be the iron works at Teschen, Kladno and Zeitweg. The Inspector General of government railroads seems to intend introducing a wire cable tradition on the Alpine line. The English—Külding Co. likely to be favored with this important job. 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A Memorial for Prof. Wöhler.—A movement is on foot in Europe and in this country to obtain funds for the purpose of presenting a gold medal to Prof. Wöhler, the great German chemist, on his eightieth birthday, July 31, 1880. Profs. Chandler and Jay, of Columbia College, are receiving contributions from those who desire to join in this testimonial in this country.

An arrangement has just been entered into between the Society of Engineers of Western Pennsylvania and the Pittsburgh Library which promises to be mutually beneficial, and is worthy of the consideration of other societies of like character. The arrangement makes the library the headquarters of the Engineers' Society, and includes the payment by the latter of a sum of money by which all its members will be entitled to all the privileges of membership in the library. This amount will be devoted under the joint directions of the library and the Engineers' Society to the purchase of scientific and technical works. It is proposed to establish an alcove in the library, in which a full collection of scientific and technical literature will be found. This Society of Engineers is a comparatively young organization, but it already numbers a membership of about 125, which is rapidly increasing among the civil and mechanical engineers of the Pittsburgh section.

WM. ESTERBROOK,
Wholesale Manufacturer of
Coal Hods,
311 Cherry St., PHILADELPHIA.

S. CHENEY & SON,
Manlius, N. Y.,
Small Gray Iron Castings.

We warrant our work for smoothness and finish.

IOWA BARB FENCE COMPANY, Limited,

93 John St., New York, and Johnstown, Pa.,

MANUFACTURERS OF
BURNELL'S PATENT

FOUR-POINTED BARB STEEL WIRE FENCING,
GALVANIZED AND PAINTED.

ALSO,

Staples, Diggers, Stretchers, &c.

Patented June 19, 1877.

Shows the exact size of our wire and barbs, except that the barbs are 6 inches apart and not $\frac{1}{4}$ inch, as shown in cut. One pound measures 15 feet in length.

Made of two strands of No. 12 Steel Wire, twisted together just enough to allow for the contraction and expansion of the metal, caused by the difference in temperature, and still not so much as to injure the structure of the steel.

The Barbs on our wire are FOUR POINTED, thus always presenting a Barb laterally or at a right angle, which is a GREAT ADVANTAGE over the two-barb wires, as cattle are unable to get against the fence to break it or push it down. The Barbs are fastened to the wire (at intervals of six inches) in a manner entirely different from any other, being securely locked AROUND and BETWEEN both wires, so that they cannot slip or move toward each other, and they also prevent the untwisting of the cable should either wire get broken.

The use of Barbed Wire for fencing is no longer an experiment, but is an acknowledged necessity, as over ONE HUNDRED THOUSAND MILES of it were put up last year, and we confidently expect twice the quantity will be used this year, as there is no other material anywhere near as cheap, as lasting or effective.

Shows our wire put up on spools, ready for shipment. Dimensions of spool, about 18 x 20 x 22, measuring about $\frac{1}{4}$ cubic feet; weight, about 100 pounds, and length of wire, about 1500 feet.

**MAXIMUM
IN
STRENGTH.**

Samples, Circulars, &c., sent to any part of the world. Correspondence invited.

**MINIMUM
IN
WEIGHT.**

\$\$\$\$ SAVED \$\$\$

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MACHINES
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ZONTAL STATIONA RY ENGINES, 1 TO

300 HORSE POWER. S.C.F.&CO.

Locomotive Fire-

Box, Horizontal, and Upright Boil-

ers, 1 to 100 Horse Power. Water Wheels, Cot-

ton and Woolen Machinery, Steam

Pumps, Crustmill Machinery,

Etc., FULLY DESCRIBED, AND

PRICES ANNEXED.

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In our List No. 23. [stating what you want.]

We have the Largest Assortment of Machinery to be found in the hands of any firm in the country.

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S. C. FORSAITH & CO.

Branch Office and Wareroom, 209 Center street, New York City.

THE PATENT Screw Window Balance,

An adjustable mechanical substitute for sash weights in their work of retaining sash. Capable of being made of any power, but now made for medium and light sash only.

As easily applied as the sash pulley.

A MODERN INVENTION, made to meet the positive want for such a balance—though as well adapted to new. Saving largely in money over weights, while their complications are all avoided. Guaranteed to possess all the merit claimed for it by actual service of over ten years.

STANDS ALONE in its line. Simple, powerful, adjustable, correct in principle, fully doing its work, but requiring no special knowledge of the public with its genuine merits to insure for it prompt and general use where such an article is required.

They are put up in card boxes, containing one dozen each. Price \$1 per window (four). Liberal discounts to the trade. Address orders, &c., to

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Hartford, Conn.

Special territory given active agents.

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SEND 15 CENTS FOR SAMPLE

THREE DIFFERENT SIZED SPOUTS

SEAMLESS BRASS COLLAR, BRASS HINGE, SOLID LID, NO SOLDERING, HINGE CANNOT MELT OFF

"DRAW CUT" BUTCHERS' MACHINES.

Choppers, Hand and Power

Stuffers, Lard Presses.

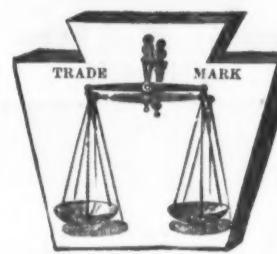
Warranted thoroughly made and the best in use.

MURRAY IRON WORKS, Burlington, Iowa.

HENRY DISSTON & SONS,

KEYSTONE SAW, TOOL,

Front & Laurel Sts.,



STEEL & FILE WORKS,

PHILADELPHIA!

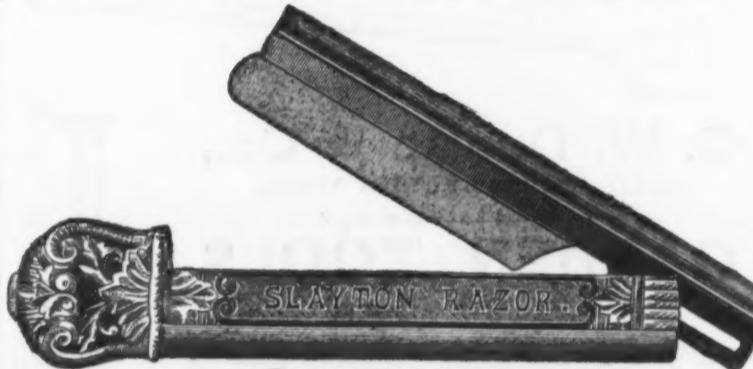


Great American One-Man Cross-Cut Saw, with Supplementary Handle.

PATENTED JUNE 27, 1876, OCTOBER 4, 1870.

The above cut represents our new and improved method of changing the extra handle to either end, thus making a One-Man Saw so it can be operated by two men if desired. The extra handle can be placed at any distance from the regular handle, as shown in the cut, thus suiting the option of the operator. The "Great American" One-Man Cross-Cut Saws are made and ground on the same principle as our No. 7 Hand Saws. We have lately improved the file for keeping this tooth in order, and it should be ordered with saws.

THE SLAYTON RAZOR.



This cut is exact size of Razor.

PERFECTION

Handles of German Silver, Nickel Plated. Blades of the Finest Steel in the World. Every Razor Fully Warranted.

L. C. TOWER, Thermometer Manufacturer,

Canvassers Wanted.

39 Exchange St., Rochester, N. Y. Sole Agent.



L. C. TOWER

Manufacturer of

Thermometers

Of Every Description,

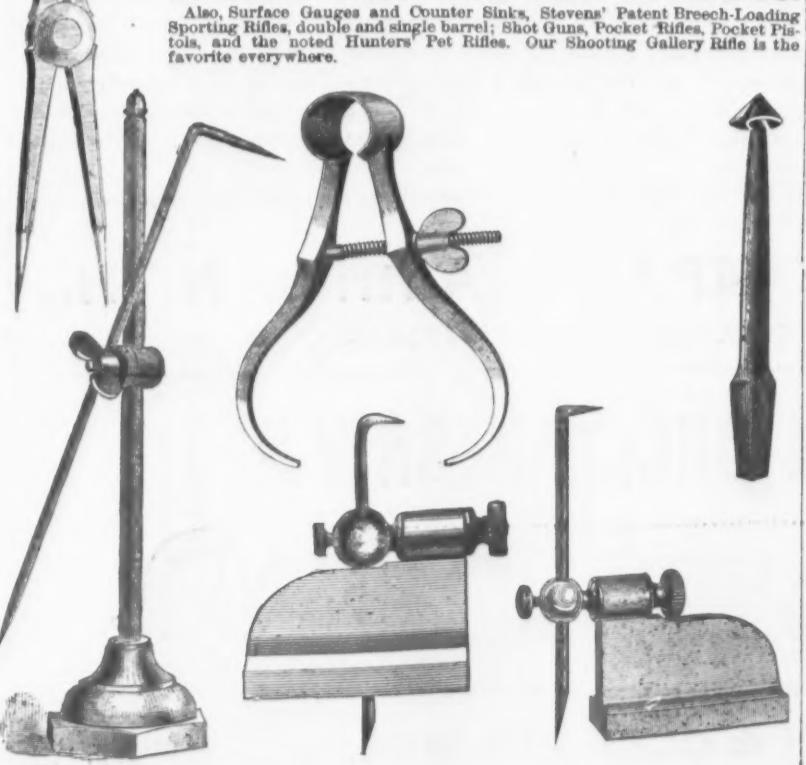
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Save Fuel and Money.

Obtain regular speed and prevent explosion by using

PEERLESS DAMPER REGULATOR,

the greatest fuel-saving appliance ever invented. Adjustable to any pressure. In ordering pressure. Illustrated Catalogue sent on application. We set it up and guarantee performance. Price, \$75.

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Valves, Chain, &c.

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ELEVATOR BOLTS.

Every Bolt made from the best of Norway Iron. Caps placed on quickly. Ecliptic Bolts can be removed without injury. Broad, flat head, which gives smooth bolt sur-

face.

Fat. Aug. 5, 1870.

For sale by the trade.

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SOLE MAKERS,

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John McLean,

Manufacturer of Ayers' Hydrants

Stop Cocks & Galvan-

ized Cemetery Supplies,

29 & 30 Monroe St., N. Y.

**KIMBALL'S PATENT
SHOVELS & SPADES.**

The blades are forged from Solid Cast Steel, and riveted to Wrought Iron Straps. The back is concave, which makes them much stronger than other shovels. They are used extensively in South America as Sugar Shovels.

ALSO,

**"BOSS" PATENT
MOLASSES GATES,**

With Ratchet Thumb-Screw to regulate the pressure to any degree of tightness.

NORRIS FRAME PULLEYS.

**KIMBALL SHOVEL CO.,
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Patent Improvement in

**ROPE GOODS.**No more Splicing or Winding
Ends with Cord.

No. 1.

Rope Halters, Horse Ties, Cattle Ties, Halter Leads &c., made by clamping the lappet with steel rings, as shown in cut. After clamping the end with a ring to prevent unbraiding, the tie is accomplished by machine, and a superior article can be made at so much less cost, it will not pay any one to make up goods the old way. We are now prepared to furnish the trade the cheapest and best Rope Halters ever made. No. 1 illustrates the twisted and irregular form of the spliced Halter; also the insecure method of whipping the end with cord, which invariably comes off, and allows the rope to untwist. No. 2 illustrates the New Halter. It is made by clamping the lappet with steel rings. The end is also secured with a steel ring, which will remain as long as the rope lasts. We have also a full line of

COVERT'S HORSE AND MULE JEWELRY.



Consisting of Covert's Celebrated Harness Snaps, Swivel Snaps, Open Eye Bit and Chain Snaps, Snap and Thimble for Horse and Cattle Ties, Rope Goods, consisting of Horse Ties, Cattle Ties and Halter Leads, Leather Horse Ties, Breast Chains, Halter Chains, Martingale Chains, Reins, Chains, Post Chains, Post Rods, &c. These goods are far superior to anything of the kind on the market. They have from real merit been standard, and never fail to give entire satisfaction. They are sold by all leading jobbers in general and saddlery hardware at manufacturers' prices. Send for illustrated catalogues and price list. Address COVERT MFG. CO., Sole Manufacturers, West Troy, N. Y.

PAT. Feb'y 11, 1879.

Peerless Tea Kettle.

The most durable and handsome kettle in the market, having the breast, sides, and a strengthening portion for the spout all spued from one piece of sheet metal and double-seamed to the pit, so that the seam is brought under the sides of the kettle, forming a strengthening rib of four thicknesses of metal, at the point of greatest wear, upon which it rests when on the stove. By this means the objections to all other copper kettles are overcome. Sole manufacturers, SUNDY MFG. CO., Buffalo, N. Y.

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The Purity and Strength of this Coal especially adapt it for the working of Iron and Metals.

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**Universal Lathe Dog.**

It is very strong. Holds very strong. Will not deface finished work. Holds round square or irregular work. Always stands square with the work and will not "skew." Is more evenly balanced than the common dog. Send for circular.

SELDEN G. NORTH, No. 347 North Fourth Street, Philadelphia, Pa.

**PATENT
SPRING HINGES**

**SPRING HINGES
WITH
PATENT ANTI-FRICTION SPRINGS,
FOR
SCREEN DOORS.**

PRICE LIST.—Per Dozen Pairs.

SINGLE JOINT HINGES.

(To Swing one Way.)

SIZE.	WITHOUT ACORN TIPS.		WITH ACORN TIPS.	
	BRASS.	NICKEL PLATED.	BRASS.	NICKEL PLATED.
2½ inch.....	\$ 3 00	\$ 4 50	\$ 5 00	\$ 6 50
3 " 	4 50	6 50	6 75	8 75
5 " 	7 50	10 00	10 00	12 50

DOUBLE JOINT HINGES.

(To Swing both Ways.)

To be used on Door 1 inch thick, or less.

SIZE.	WITHOUT ACORN TIPS.		WITH ACORN TIPS.	
	BRASS.	NICKEL PLATED.	BRASS.	NICKEL PLATED.
2½ inch.....	\$ 6 60	\$ 9 00	\$ 11 50	\$ 14 25
3 " 	8 30	11 50	13 50	17 00
5 " 	16 50	21 00	21 50	26 00
6 " Double for Office Doors.....				54 00

The large cut represents full size of our 5-inch Double Joint Acorn Tip Hinge for mortising.

The small cut represents the plain Single Joint Hinges, but not full size.

Sample pair will be sent by mail on receipt of price.

Liberal Discount to the Trade.

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Elliptic Spring Whistles

We call the attention of the trade to the whistle for speaking tubes, represented in above cut, being superior, in a mechanical point of view, on account of the

PATENT ELLIPTIC SPRING,

which is much less liable to break and get out of order than the spiral spring usually used. These whistles being made entirely of metal, are very strong and durable. They are offered in a variety of styles at very reasonable prices. Send for illustrated circular and quotations.

We also invite an examination of our PATENT REVERSIBLE DOOR LOCKS, which by their peculiar construction, combine SIMPLICITY, STRENGTH and DURABILITY. In these Locks the combination of the Patent Lever and Spring renders the latch movement very easy and prompt in action.

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Manufacturers of Superior Building Hardware.

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Represented in New York by LAMSON & GOODNOW MFG. CO.

THE
DEXTER
CARRIAGE SPRING

Combines Strength, Graceful, Noiseless, Beauty, Light and Easy.

The DEXTER SPRING is the most perfect Carriage Spring ever invented.

Wherever it is known it is rapidly superseding all others for pleasure vehicles. It is especially recommended for use on the rough roads of new countries, as its peculiar construction relieves the strain on the vehicle and shock to the passenger, while the high grade of material used reduces the probability of breakage to a minimum.

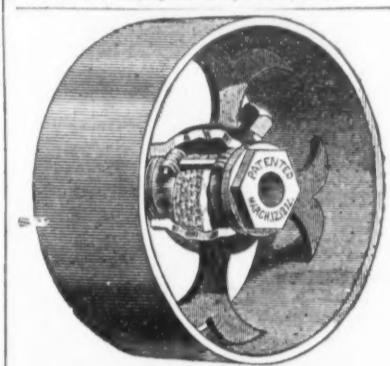
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GEORGE N. PIERCE, Buffalo, N. Y.,
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Bird Cages, Refrigerators
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HOUSE FURNISHING GOODS.

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28 Beckman St., New York City
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BUILDERS' HARDWARE,
No. 50 Central Ave., CINCINNATI, OHIO.
Sole Agents for
HUME'S CHALLENGE
Gate Hinge
and Latch.

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Send for Price List.
All goods guaranteed
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CORN SHELLER**

Is the best Hand Sheller
made; does the best work
and works the best; is war-
anteed five years.
Agents Wanted in every County.
Sample sent on receipt
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Specially adapted for export.
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J. BILLERBECK

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Iron Gimlet-Pointed Wood Screws

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THE HOHOKEN COAL CO.,

Dealers in
SCRANTON, LEHIGH and other COALS
Retail Yard on D. L. & W. Railroad, cor. Grove and
10th Sts., Jersey City. Coal delivered direct from shutes
to carts and wagons. Families and manufacturers supplied
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An arrangement has just been entered into between the Society of Engineers of Western Pennsylvania and the Pittsburgh Library which promises to be mutually beneficial, and is worthy of the consideration of other societies of like character. The arrangement makes the library the headquarters of the Engineers' Society, and includes the payment by the latter of a sum of money by which all its members will be entitled to all the privileges of membership in the library. This amount will be devoted under the joint directions of the library and the Engineers' Society to the purchase of scientific and technical works. It is proposed to establish an alcove in the library, in which a full collection of scientific and technical literature will be found. This Society of Engineers is a comparatively young organization, but it already numbers a membership of about 125, which is rapidly increasing among the civil and mechanical engineers of the Pittsburgh section.

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Small Gray Iron Castings.

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FOUR-POINTED BARB STEEL WIRE FENCING,

GALVANIZED AND PAINTED.

ALSO,

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Patented June 19, 1877.

Shows the exact size of our wire and barbs, except that the barbs are 6 inches apart and not 3½ as shown in cut. One pound measures 15 feet in length.

Made of two strands of No. 12 Steel Wire, twisted together just enough to allow for the contraction and expansion of the metal, caused by the difference in temperature, and still not so much as to injure the structure of the steel.

The Barbs on our wire are FOUR POINTED, thus always presenting a Barb laterally or at a right angle, which is a GREAT ADVANTAGE over the two-barb wires, as cattle are unable to get against the fence to break it or push it down.

The Barbs are fastened to the wire (at intervals of six inches) in a manner entirely different from any other, being securely locked AROUND and BETWEEN both wires, so that they cannot slip or move toward each other, and they also prevent the untwisting of the cable should either wire get broken.

The use of Barbed Wire for fencing is no longer an experiment, but is an acknowledged necessity, as over ONE HUNDRED THOUSAND MILES of it were put up last year, and we confidently expect twice the quantity will be used this year, as there is no other material anywhere near as cheap, as lasting or effective.

Shows our wire put up on spools, ready for shipment. Dimensions of spool, about 18 x 20 x 22, measuring about 4½ cubic feet; weight, about 100 pounds, and length of wire, about 1500 feet.

**MAXIMUM
IN
STRENGTH.**

Samples, Circulars, &c., sent to any part of the world.

Correspondence invited.

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WEIGHT.**

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COMPRISED
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WOOD-WORKING MACHINERY IN ALL ITS
BRANCHES. PORTABLE ENGINES. UPRIGHT AND HOR-
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PUMPS, CRISTMILL MACHINERY,
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An adjustable mechanical substitute for sash weights in their work of raising sash. Capable of holding up to 1000 pounds, but now made for medium and light sash only.

As easily applied as the sash pulley.

A MODERN INVENTION made so meet a positive want for old windows, though as well adapted to new. Saving largely in money over weights, while their complications are all avoided. Guaranteed to stand the strain of 1000 pounds for actual service of over ten years.

STANDS ALONE in its line. Simple, powerful, adjustable, compact in principle, for doing its work, needing but the acquaintance of the public with its genuine merits to insure for it prompt and general use wherever it may be introduced.

When applied they are out of sight (working in the edges of the sash); are not handled in working; the sash is balanced at operation with the meeting rail lock.

They are put up in card boxes, containing one dozen each. Price \$1 per window (four). Liberal discounts to the trade. Address orders, &c., to

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15 CENTS
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HINGE
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Great American One-Man Cross-Cut Saw, with Supplementary Handle.

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KIMBALL'S PATENT "Solid Cast Steel" SHOVELS & SPADES.

The blades are forged from Solid Cast Steel, and riveted to Wrought Iron Straps. The back is concave, which makes them much stronger than other shovels. They are used extensively in South America as Sugar Shovels.

ALSO, "BOSS" PATENT MOLASSES GATES,

With Ratchet Thumb-Screw to regulate the pressure to any degree of tightness.

NORRIS FRAME PULLEYS.

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No more Splicing or Winding
Ends with Cord.

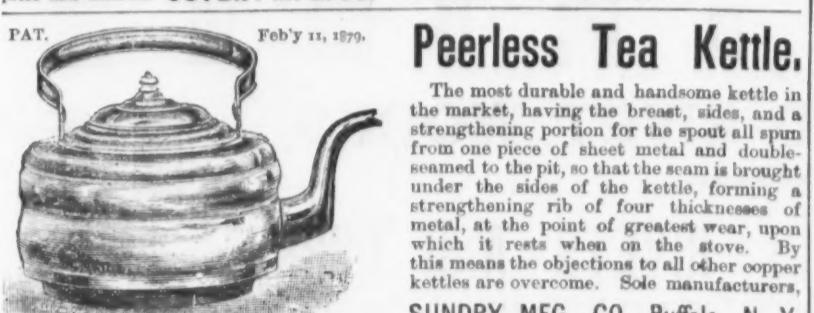
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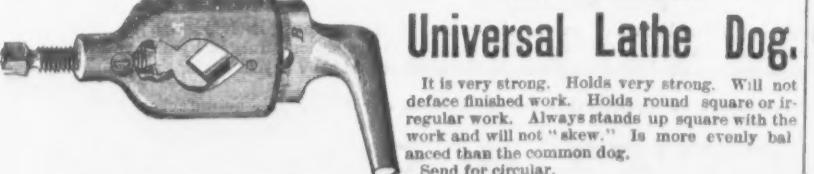
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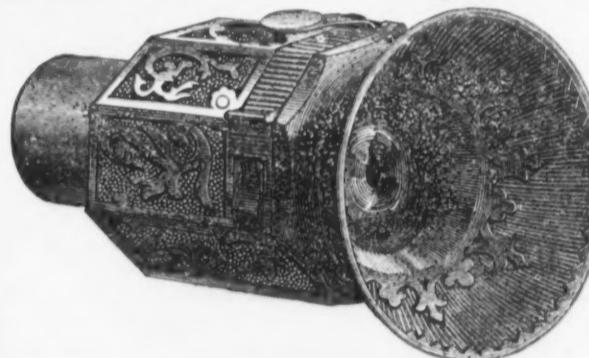
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Beecher & Peck, New Haven, Ct.
Edge Tools, Makers of.
Doscher M., 66 Chambers, N. Y.
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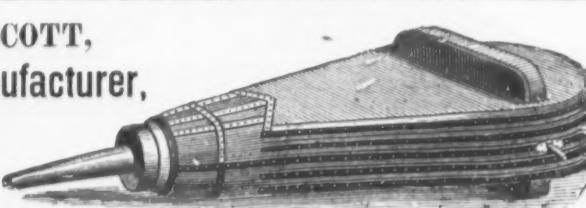
Piano Irons, Manufacturers of.	Buck Bros., Millbury, Mass.	10
Greenfield Tool Co., Greenfield, Mass.	Greenfield Tool Co., Greenfield, Mass.	25
Panels, Manufacturers of.	Greenfield Tool Co., Westfield, Mass.	25
Stanley Rule and Level Co., 29 Chambers, N. Y.	Stanley Rule and Level Co., 29 Chambers, N. Y.	3
Pated Ware.	Hall, Elton & Co., 7 Chambers, N. Y.	11
The Wm. Rogers Mfg. Co., Hartford, Ct.	The Wm. Rogers Mfg. Co., Hartford, Ct.	11
Pows.	Norwegian Plow Co., Dubuque, Iowa.	11
Pumbers' Materials, Manufacturers o	Pumbers' Materials, Manufacturers o	41
Carr Wm. S. & Co., 106 Center, N. Y.	Carr Wm. S. & Co., 106 Center, N. Y.	41
Everhart Jas. M., Scranton, Pa.	Everhart Jas. M., Scranton, Pa.	44
Pocket Knives.	Boker Herman & Co., 10 Duane, N. Y.	12
Potteries, Tea and Coffee.	Deerla R. C., Philadelphia.	25
Sundry Mfg. Co., Buffalo, N. Y.	Sundry Mfg. Co., Buffalo, N. Y.	29
Power Hammers.	Dienelt, Eisenhardt & Co., Philadelphia, Pa.	42
Presses, Fruit and Vegetable.	Clark Widdifield & Co., Cincinnati, O.	42
Mohawk & Hudson Mfg. Co., Waterford, N. Y.	Mohawk & Hudson Mfg. Co., Waterford, N. Y.	8
Presses, Power, Makers of.	Williss & Williams, 107 Plymouth, Brooklyn.	42
Merriman A. H., West Meriden, Conn.	Merriman A. H., West Meriden, Conn.	43
Peerless Punch & Shar Co., 52 Dev. N. Y.	Peerless Punch & Shar Co., 52 Dev. N. Y.	43
The Stiles & Parker Press Co., Middletown, Ct.	The Stiles & Parker Press Co., Middletown, Ct.	42
Pulleys.	Farrelle W., Cincinnati, O.	29
Renfrew Block Works, Lockport, N. Y.	Renfrew Block Works, Lockport, N. Y.	32
Providence Tool Co., Providence, R. I.	Providence Tool Co., Providence, R. I.	27
Pumps, Makers of.	Douglas W. H., Middletown, Conn.	7
Gunnison A. B., Erie, Penn.	Gunnison A. B., Erie, Penn.	33
Hartford Compressed Air Pump Co., Hartford, Conn.	Hartford Compressed Air Pump Co., Hartford, Conn.	33
Philadelphia Hydraulic Works, Philadelphia.	Philadelphia Hydraulic Works, Philadelphia.	18
Plates, &c., 100 Selected Falls, N. Y.	Plates, &c., 100 Selected Falls, N. Y.	7
Rumsey L. M., Union Mfg. Co., Chambers, N. Y.	Rumsey L. M., Union Mfg. Co., Chambers, N. Y.	40
Rail, Iron and Steel, Makers of.	Allentown Rolling Mill Co., Allentown, Pa.	5
Cambrria Iron Co., Johnstown, Pa.	Cambrria Iron Co., Johnstown, Pa.	5
Cleveland Rolling Mill Co., Cleveland, Ohio.	Cleveland Rolling Mill Co., Cleveland, Ohio.	3
Montour Iron & Steel Co., Danville, Pa.	Montour Iron & Steel Co., Danville, Pa.	3
The Edgar Thomson Steel Co., 57 Broadway, N. Y.	The Edgar Thomson Steel Co., 57 Broadway, N. Y.	37
Razors.	Tower L. C., Rochester, N. Y.	28
J. R. Torrey Razor Co., Worcester, Mass.	J. R. Torrey Razor Co., Worcester, Mass.	18
Rivets.	Gilmor Wm., of Wm., Baltimore, Md.	44
Grundy Geo. C., 165 Greenwich, N. Y.	Grundy Geo. C., 165 Greenwich, N. Y.	30
Hooper Townsend, Philadelphia, Pa.	Hooper Townsend, Philadelphia, Pa.	41
Townsend W. P. & Co., Pittsburgh, Pa.	Townsend W. P. & Co., Pittsburgh, Pa.	41
Rock Breakers.	Blake Crusher Co., New Haven, Conn.	40
Blake Crusher Co., New Haven, Conn.	Blake Crusher Co., New Haven, Conn.	40
Rolls (Chilled), Makers of.	Garrison A. & Co., Pittsburgh, Pa.	40
Rules, Manufacturers of.	Stanley Rule and Level Co., 29 Chambers, N. Y.	3
Sad Irons.	Chalfant Mfg. Co., 435 Arch, Philadelphia.	13
Enterprise Mfg. Co., Philadelphia.	Enterprise Mfg. Co., Philadelphia.	35
Sand and Emery Paper, Makers of.	Rader Adamson & Co., 730 Market, Philadelphia.	33
Saws, Makers of.	Boyston E. M., 20 Beekman, N. Y.	41
Diaslon Henry & Sons, Phila.	Diaslon Henry & Sons, Phila.	28
Gerlich Peter & Co., Cleveland, Ohio.	Gerlich Peter & Co., Cleveland, Ohio.	7
Wheeler, Madden & Clemens Mfg. Co., Middle town, N. Y.	Wheeler, Madden & Clemens Mfg. Co., Middle town, N. Y.	27
Scales, Manufacturers of.	Arnold & Rowe, Lansingburgh, N. Y.	33
Arnold & Rowe, Lansingburgh, N. Y.	Arnold & Rowe, Lansingburgh, N. Y.	33
Howe Scale Co., Buffalo, N. Y.	Howe Scale Co., Buffalo, N. Y.	9
Howe Scale Co., Rutland, Vt.	Howe Scale Co., Rutland, Vt.	16
Olsen Tinius & Co., Philadelphia.	Olsen Tinius & Co., Philadelphia.	16
Riente Bros., ob above Master, Phila.	Riente Bros., ob above Master, Phila.	25
Weeks & Ray, Buffalo, N. Y.	Weeks & Ray, Buffalo, N. Y.	12
Screws, Makers of.	Bitterbeck J., 17th and Venango Sts., Philadelphia.	29
Miles F. S., 205 Quarry, Phila.	Miles F. S., 205 Quarry, Phila.	13
Philadelphia Screw Co., Philadelphia, Pa.	Philadelphia Screw Co., Philadelphia, Pa.	12
Screw Cutting Machinery.	Wiley & Russell Mfg. Co., Greenfield, Mass.	19
Screw Drivers, (Improved) Makers of	Diaslon Henry & Sons Phila.	28
Scythes.	Beardslee Scythe Co., West Winfield, Conn.	19
Scythe Stones.	Erike A. F. Pike Station, N. H.	18
Shafting, Makers of.	Severs Wm. & Co., Phila. and 79 Liberty st., N. Y.	43
Shears.	Henry Seymour Cutlery Co., 84 and 86 Chambers st., N. Y.	30
Renz Hardware Co., Bridgeport, Conn.	Renz Hardware Co., Bridgeport, Conn.	10
Shears (Sheep).	Field Alfren & Co., 29 Chambers, N. Y.	10
Hilditch A. H., 12 Warren, N. Y.	Hilditch A. H., 12 Warren, N. Y.	10
Shear & Scythe Co.	Sparks Thos. W., 121 Walnut, Philadelphia.	33
Scythes, Spades and Scythes.	Sparks Thos. W., 121 Walnut, Philadelphia.	33
Griffith Geo., Phila. Pa.	Griffith Geo., Phila. Pa.	38
Hussey, Binns & Co., Pittsburgh, Pa.	Hussey, Binns & Co., Pittsburgh, Pa.	12
Kimball Shovel Co., Baltimore, Md.	Kimball Shovel Co., Baltimore, Md.	29
Shutters, Steel and Wood.	Clark & Co., 162 W. 27th, N. Y.	8
Sifters.	Hunter J. M. & Co., Cincinnati, O.	10
Smelting Works.	Philadelphia Smelting Co., 12th and Noble sta., Philadelphia.	37
Reeves Paul S., 76 South Broad, Phila.	Reeves Paul S., 76 South Broad, Phila.	44
Snaths.	Vermont Snath Co., Springfield, Vt.	29
Speaking Tubes.	Ostrander W. R., 19 Ann N. Y.	29
Spelter.	Manning & Squier, 113 Liberty, N. Y.	2
Osgood F. & Co., Bergen Port, N. J.	Osgood F. & Co., Bergen Port, N. J.	33
Spiegelisen.	Wright Peter & Sons, 52 Broadway, N. Y.	5
Spoons.	Holmes, Booth & Haydens, 40 Chambers, N. Y.	28
The Wm. Rogers Mfg. Co., Hartford, Ct.	The Wm. Rogers Mfg. Co., Hartford, Ct.	11
Springs.	Cary & Moen, 234 W. 20th, N. Y.	3
Gautier Steel Co., Ltd., Johnston, Pa.	Gautier Steel Co., Ltd., Johnston, Pa.	32
Rowland Wm. & Harvey, Frankford, Phila.	Rowland Wm. & Harvey, Frankford, Phila.	44
Steam Hammers, &c., Makers of.	Dienelt, Eisenhardt & Co., Philadelphia, Pa.	42
Dudgeon Richard, Columbia, N. Y.	Dudgeon Richard, Columbia, N. Y.	44
Steam Pumps, &c., Manufacturers of.	Clayton Steam Pump Works, 14 and 16 Water st., Brooklyn, N. Y.	42
Crane Bros. Mfg. Co., Chicago, Ill.	Crane Bros. Mfg. Co., Chicago, Ill.	9
David I. B., Hartford, Conn.	David I. B., Hartford, Conn.	42
Kenly Wm. E., Cortlandt, N. Y.	Kenly Wm. E., Cortlandt, N. Y.	40
McGowan John H. & Co., Cincinnati, O.	McGowan John H. & Co., Cincinnati, O.	43
Storer G. W., 123 N. 9th, Philadelphia.	Storer G. W., 123 N. 9th, Philadelphia.	43
The Norwalk Iron Works Co., So. Norwalk Ct.	The Norwalk Iron Works Co., So. Norwalk Ct.	41
Steel Castings, Manufacturers of.	Eureka Cast Steel Co., Chester, Pa.	4
Flagg Stanley G. & Co., Philadelphia.	Flagg Stanley G. & Co., Philadelphia.	4
Fitzpatrick Steel Casting Co., Pittsburgh, Pa.	Fitzpatrick Steel Casting Co., Pittsburgh, Pa.	4
Steel Importers.	Carr J. & Riley, 50 Gold, N. Y.	2
Hobson Francis & Son, 97 John, N. Y.	Hobson Francis & Son, 97 John, N. Y.	2
McCoy & Co., 134 and 136 Duane, N. Y.	McCoy & Co., 134 and 136 Duane, N. Y.	2
Pferson & Co., 24 Broadway, N. Y.	Pferson & Co., 24 Broadway, N. Y.	2
Wolf Kahn & Co., 46 Cliff, N. Y.	Wolf Kahn & Co., 46 Cliff, N. Y.	2
Steel Musket's Special.	Handal & Jones, 10 Oliver, Boston, Mass.	2
Steel Manufacturers.	Albany, Benjamin & Co., 21 Pearl, N. Y.	2
Athra, Benjamin & Co., 21 Pearl, N. Y.	Athra, Benjamin & Co., 21 Pearl, N. Y.	2
Cleveland Rolling Mill Co., Cleveland, O.	Cleveland Rolling Mill Co., Cleveland, O.	2
Gauthier Steel Co., Ltd., Johnston, Pa.	Gauthier Steel Co., Ltd., Johnston, Pa.	2
Midvale Steel Works, Nictown, Phila., Pa.	Midvale Steel Works, Nictown, Phila., Pa.	2
Miller Metalcf & Parkin, Pittsburgh.	Miller Metalcf & Parkin, Pittsburgh.	2
Penns. Steel Co., 10th and 12th, Phila.	Penns. Steel Co., 10th and 12th, Phila.	2
Philadelphia Steel Forge, Philadelphia, Pa.	Philadelphia Steel Forge, Philadelphia, Pa.	2
Rowland Wm. & Harvey, Frankford, Phila.	Rowland Wm. & Harvey, Frankford, Phila.	2
Sanderson Geo. & Co., 50 Gold, N. Y.	Sanderson Geo. & Co., 50 Gold, N. Y.	2
Smith, Sutton & Co., Pittsburgh, Pa.	Smith, Sutton & Co., Pittsburgh, Pa.	2
Singer, Nimick & Co., Pittsburgh, Pa.	Singer, Nimick & Co., Pittsburgh, Pa.	2
Spencer J. R. & Son, Sheffield, England.	Spencer J. R. & Son, Sheffield, England.	2
Standart Steel Works, Philadelphia, Pa.	Standart Steel Works, Philadelphia, Pa.	2
The Edgar Thomson Steel Co., 57 Broadway, N. Y.	The Edgar Thomson Steel Co., 57 Broadway, N. Y.	2
The Steel Co. of Scotland, 72 Pine, N. Y.	The Steel Co. of Scotland, 72 Pine, N. Y.	2
Wardlow S. & C., Sheffield, England.	Wardlow S. & C., Sheffield, England.	2
Steel Wire Springs, Manufacturers of.	Chatillon John & Sons, 91 and 93 Cliff, N. Y.	2
Steel Tube Cleaners.	Chatillon John & Sons, 91 and 93 Cliff, N. Y.	2
The Chalmers-Spence Co., foot 9th St., E. R., N. Y.	The Chalmers-Spence Co., foot 9th St., E. R., N. Y.	2
Stocks and Dies.	Holtroyd & Co., 1000 Waterford, N. Y.	2
Wiley & Russell Mfg. Co., Greenfield, Mass.	Wiley & Russell Mfg. Co., Greenfield, Mass.	2
Stoppers, Blister Lend.	Taunton Crucible Co., Taunton, Mass.	2
Tauton Crucible Co., Taunton, Mass.	Tauton Crucible Co., Taunton, Mass.	2
Stone Boards, Manufacturers of.	Ansonia Glass and Copper Co., 19 and 21 Cliff, N. Y.	2
Stone Trucks.	Tucker Alarm Till Mfg. Co., Indianapolis, Ind.	2
Strops, Razors.	Cleveland, Robert & Co., Rochester, N. Y.	2
Torrej J. B., Worcester, Mass.	Torrej J. B., Worcester, Mass.	2
Stamp Puller.	Burger M. E. & Co., Indianapolis, Ind.	2
Tacks.	American Tack Co., Fairhaven, Mass.	2
Dunbar, Hobart & Whidden, 39 Warren, N. Y.	Dunbar, Hobart & Whidden, 39 Warren, N. Y.	2
Emmons F. R., 55 Warren, N. Y.	Emmons F. R., 55 Warren, N. Y.	2
Field A. Sons, Taunton, Mass.	Field A. Sons, Taunton, Mass.	2
Grundy Geo. C., 165 Greenwich, N. Y.	Grundy Geo. C., 165 Greenwich, N. Y.	2
Shelton & Co., Birmingham, Ct.	Shelton & Co., Birmingham, Ct.	2
Taps and Dies.	American Tack Co., Fairhaven, Mass.	2
Carpenter J. M., Pawtucket, R. I.	Carpenter J. M., Pawtucket, R. I.	2
Manning H. S. & Co., 111 Liberty, N. Y.	Manning H. S. & Co., 111 Liberty, N. Y.	2
Wiley & Russell Mfg. Co., Greenfield, Mass.	Wiley & Russell Mfg. Co., Greenfield, Mass.	2
Testing Machines.	Olsen Tinius & Co., Philadelphia, Pa.	2
Thermometers.	Tower L. C., Rochester, N. Y.	2
Tin Plates, Importers of.	Tin Plate Co., Pittsburgh, Pa.	2
N. G. Taylor Co., Philadelphia.	N. G. Taylor Co., Philadelphia.	2
Tin Plates, Manufacturers of.	S. S. iron & Tin Plate Co., Pittsburgh, Pa.	2
Tin Ware, Stamped and Japanned.	Block David, 65 Bayard, N. Y.	2
Haberzman F., 291 Pearl, N. Y.	Haberzman F., 291 Pearl, N. Y.	2
Shepard Sidney & Co., Buffalo, N. Y.	Shepard Sidney & Co., Buffalo, N. Y.	2
Vogel William, Brooklyn, E. D., N. Y.	Vogel William, Brooklyn, E. D., N. Y.	2
Tool Chests.	American Tool Co., 116 Chambers, N. Y.	2
American Tool Co., 116 Chambers, N. Y.	American Tool Co., 116 Chambers, N. Y.	2
Tools, Steam and Gas Filters.	Sauders' Sons, Yonkers, N. Y.	2
Transportation Lines.	The Iron Line, 33 Coenties Slip, N. Y.	2
Trowels.	Bruce Geo. W., 1 Platt, New York.	2
Tug Squares, Bevels, &c., Makers of.	Diaslon Henry & Sons, Phila.	2
Tucker Alarm Till Mfg. Co., Indianapolis, Ind.	Tucker Alarm Till Mfg. Co., Indianapolis, Ind.	2
Tube Expanders.	Dudgeon Richard, 22 Columbia, N. Y.	2
Tubing.	Merchant & Co., 50 Market, Phila.	2
Twist Drills, Makers of.	Morse Twist Drill & Mach. Co., N. Bedford, Mass.	2
Morse Twist Drill & Mach. Co., N. Bedford, Mass.	Morse Twist Drill & Mach. Co., N. Bedford, Mass.	2
Upoisterers' Goods.	Turner & Seymour Mfg. Co., 81 Brade, N. Y.	2
Valves, Gas, Water and Steam.	Howe Valve Mfg. Co., Troy, N. Y.	2
Mohr & Hudson Mfg. Co., Waterford, N. Y.	Mohr & Hudson Mfg. Co., Waterford, N. Y.	2
Varnish.	Berry Brothers, Detroit, Mich.	2
Vases.	Hall Mfg. Co., 23 Devy, N. Y.	2
Mittra Failla Co., 72 Chambers, N. Y.	Mittra Failla Co., 72 Chambers, N. Y.	2
Wheels, Railroad.	Whitnev A. & Sons, Philadelphia.	2
Whiststones.	Pike A. F., Pike Station, N. H.	2
White Lead.	Brooklyn White Lead Co., 183 Front, N. Y.	2
Brooklyn White Lead Co., 183 Front, N. Y.	Brooklyn White Lead Co., 183 Front, N. Y.	2
Conrad Robert & Co., 281 Pearl, N. Y.	Conrad Robert & Co., 281 Pearl, N. Y.	2
Jewett John & Sons, 182 Front, N. Y.	Jewett John & Sons, 182 Front, N. Y.	2
Lewis John T. & Bros., 231 S. Front, Phila, Pa.	Lewis John T. & Bros., 231 S. Front, Phila, Pa.	2
Window Balances.	Huginn R. B., Hartford, Ct.	2
Window Springs, Makers of.	Hammond W. S., Lewisberry, Pa.	2
Wire, Manufacturers of.	Cary & Moen, 234 W. 20th, N. Y.	2
Cleveland Rolling Mill Co., Cleveland, Ohio.	Cleveland Rolling Mill Co., Cleveland, Ohio.	2
Gautier Steel Co., Ltd., Johnston, Pa.	Gautier Steel Co., Ltd., Johnston, Pa.	2
Gilber & Bennett Mfg. Co., 273 Pearl, N. Y.	Gilber & Bennett Mfg. Co., 273 Pearl, N. Y.	2
Goodwin White Lead Co., 186 Pearl, N. Y.	Goodwin White Lead Co., 186 Pearl, N. Y.	2
Harrison Wire Co., St. Louis, Mo.	Harrison Wire Co., St. Louis, Mo.	2
Howard & Morse, 15 Fulton, N. Y.	Howard & Morse, 15 Fulton, N. Y.	2
Iowa Barb Fence Co., 93 John, N. Y.	Iowa Barb Fence Co., 93 John, N. Y.	2
Prentiss Geo. W. & Co., Holyoke, Mass.	Prentiss Geo. W. & Co., Holyoke, Mass.	2
Perkins & Choate, 23 Nassau, N. Y.	Perkins & Choate, 23 Nassau, N. Y.	2
Trenton Iron Co., Trenton, N. J.	Trenton Iron Co., Trenton, N. J.	2
Washburn & Moen Mfg. Co., Worcester, Mass.	Washburn & Moen Mfg. Co., Worcester, Mass.	2
Wire Goods, Manufacturers of.	Dufur & Co., 50 Howard st., Baltimore, Md.	2
Gilber & Bennett Mfg. Co., 273 Pearl, N. Y.	Gilber & Bennett Mfg. Co., 273 Pearl, N. Y.	2
Wire Nails.	American Wire Nail Co., Covington, Ky.	2
Dunbar, Hobart & Whidden 39 Warren, N. Y.	Dunbar, Hobart & Whidden 39 Warren, N. Y.	2
Field A. Sons, Taunton, Mass.	Field A. Sons, Taunton, Mass.	2
HP. Nail Co., Cleveland, Ohio.	HP. Nail Co., Cleveland, Ohio.	2
Wire Rope, Iron and Steel, Makers of.	Broderick & Bascom, St. Louis, Mo.	2
Hazard Mfg. Co., Wilkes-Barre, Pa.	Hazard Mfg. Co., Wilkes-Barre, Pa.	2
Roebiling's John A. Sons, Trenton, N. J.	Roebiling's John A. Sons, Trenton, N. J.	2
Wrenches.	Call Hdw. & Tool Co., Springfield, Mass.	2
Coe A. G. & Co., Worcester, Mass.	Coe A. G. & Co., Worcester, Mass.	2
Girard Wrench Mfg. Co., Girard, Pa.	Girard Wrench Mfg. Co., Girard, Pa.	2
Wringers.	Alexander T. J. Boston, Mass.	2
Metropolitan Mfg. Co., 32 Cortlandt, N. Y.	Metropolitan Mfg. Co., 32 Cortlandt, N. Y.	2
Peerless Wringer Co., Cincinnati, O.	Peerless Wringer Co., Cincinnati, O.	2
Zinc.	Lucas & Co., 8 Rutledge St., N. Y.	2

ZUCKER & LEVETT, NICKEL PLATERS' SUPPLIES.

Estimates for Complete Outfits Furnished.

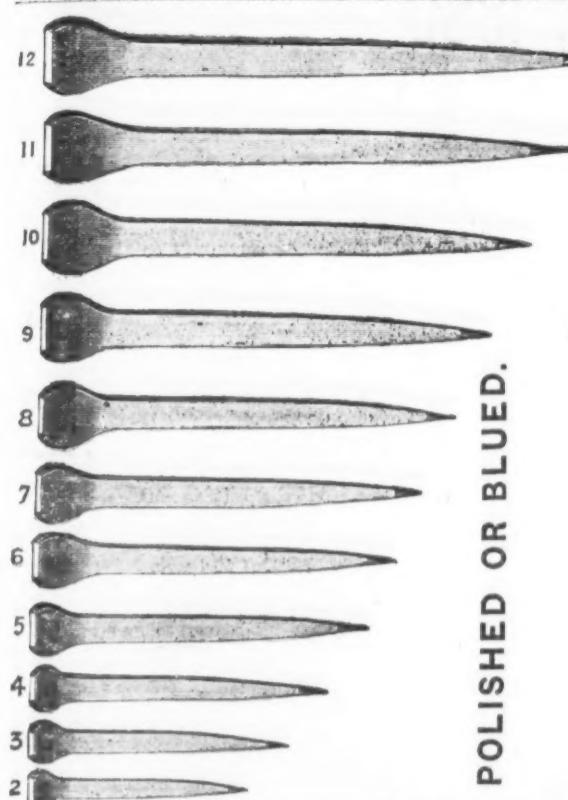
**GEO. M. SCOTT,
Bellows Manufacturer.**

Johnson Street.



Journal of Health Politics, Policy and Law, Vol. 35, No. 4, December 2010
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PROOF DOOR BOLTS.
Easy Applied, Sure Protection
and Pleasing Finish.
HOBART B. IVES
Sole Manufacturer and Patentee,



AUSABLE HORSE NAILS,

Hot Forged and Cold Hammered Pointed,

Are the only Nails in market that are made in imitation of the Hand Process. They have the uniformity of Machine Nails and the toughness of those hammered by hand. Our

Twisted, Bent and Drawn
COLD.

HOT FORGED AND COLD HAMMERED POINTED NAILS

Are the Standard Nails,

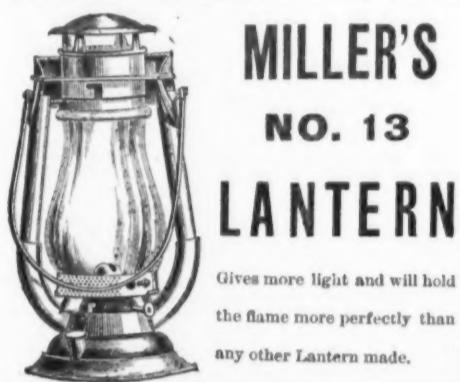
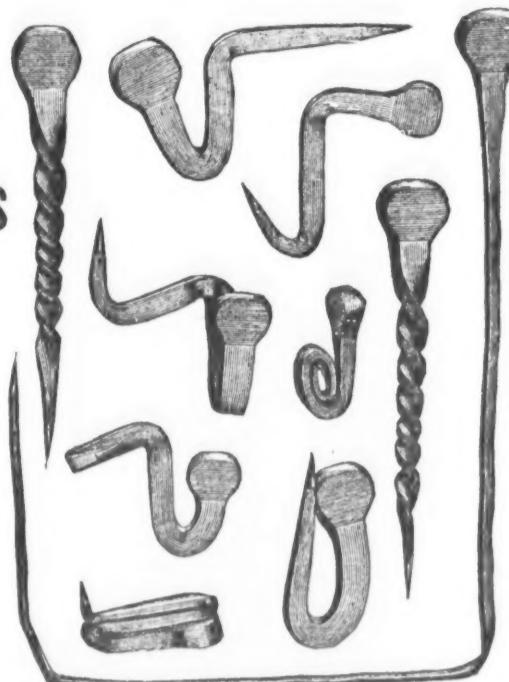
and are acknowledged to be the best in the market. They are used by the best shoers in New York, Brooklyn, Philadelphia, Chicago, Saint Louis, Milwaukee, Baltimore, &c., and

GENERALLY THROUGHOUT THE UNITED STATES.

They also compete successfully in Foreign Countries with machine and hand-made Nails of their own manufacture.

AUSABLE HORSE NAIL CO.,

4 Warren St., New York.



MILLER'S
NO. 13
LANTERN

Gives more light and will hold
the flame more perfectly than
any other Lantern made.



For Prices and Samples,
address
**Edw'd Miller
& Co.,**
Meriden, Conn.,
35 Warren St.,
New York.

Manufacturers of
Lanterns,
Brass Kettles,
Machine Oilers,
Kerosene Goods,
Tinners' Trimmings,
&c., &c.



The Oldest Shot Tower in America.
FOUNDED JULY 4, 1808.



THOMAS W. SPARKS,
Manufacturer of
SPARKS'
American Chilled Shot,
Rivaling the English and all Others.
STANDARD DROP & BUCK SHOT
AND BAR LEAD.
121 Walnut Street, Philadelphia.

A. B. GUNNISON,
MANUFACTURER OF
WOOD
PUMPS
ERIE, PA.
ESTABLISHED - 1856.
Warranted Genuine
Cucumber Pumps & Pipe. Also Poplar
Pumps, Lined Pumps, &c.
The Trade Supplied by
H. B. GRIFFING,
60 Cortlandt St., N. Y.
CLARK & MACKROTH,
General Northwestern Agents,
Minneapolis, Minn.
KIRK & DICKSON,
New Castle, Pa.
KNECHT & THOMAS,
Winchester, Ind.
—AND BY—
A. B. GUNNISON
Manufacturer.
ERIE, PA.

EMPIRE
FORGES
Improved, without
Belts, Bellows, Crank
Pins, Dead Centers or
Packing motion. Send for
Circular.
Empire Portable
Forge Co.,
Cohoes, N. Y.

THE FAR-FAMED
AMERICAN
LUBRICATOR.
AMERICAN LUBRICATOR CO.
DETROIT, MICH. U.S.A.

STAR LOCK WORKS.

ESTABLISHED 1836.

Trunk Locks,
Pad Locks,
Dead Latches,
Keys, &c., &c.
110 South 8th St., and Sansom, bet. 8th
and 9th, PHILADELPHIA.



PATENTED
Scand. Pad Locks,
With Flat Keys.
Shackel secured to
the Lock Box.

HILLEBRAND & WOLF.

Bergen Port Spelter
MINES : WORKS & FURNACES
Lehigh Valley, Pa. Bergen Port, N. J.
The only Miners and Manufacturers of

PURE
LEHIGH
SPELTER

From Lehigh Ore.
Especially adapted for
Cartridge Metal and German Silver.

Also manufacturers of
BERGEN PORT OXIDE ZINC.

Superior for LIQUID PAINT on account of its body
and wearing properties.

F. OSCOOD & CO., Proprietors.

E. A. FISHER, Agent, 13 Burling Slip, N. Y.

PECK &
BEMI
CLEVELAND
MANUFACTURERS OF
"STANDARD DAY"
BELTING.
JOBBERS OF
RUBBER GOODS
N.Y. BELTING
CO.

Watchman's Improved Time Detector,
with Safety Lock Attachment.
Patented 1859-60.

Beware of imitations. This instrument is supplied with 12 keys for 12 different stations. Invaluable for all concerns employing night watchmen. Send for circulars to
K. M. HAUSER,
22 Broadway, N. Y.
P. O. Box 287.

THOMAS MORTON,
65 Elizabeth Street, New York,
Manufacturer of Copper and Iron
SASH CHAINS,
With Patent Attachments.
Warranted for years. Chains of any size made to
order, and trade supplied with liberal discounts.

The Iron-Masters' LABORATORY.

Exclusively for the
Analysis of Ores of Iron, Pig and Manufactured
Iron, Steels, Limestone, Clays,
Slags and Coal for Practical
Metallurgical Purposes.

No. 339 Walnut St., Philadelphia.
J. BLODGET BRITTON.

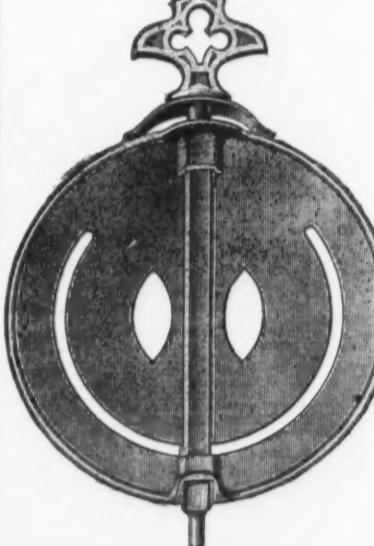
This laboratory was established in 1866, at the instance of a number of practical Iron Masters, to supply the proprietors of iron works with reliable information upon the chemical composition of the substances above mentioned, for smelting and refining purposes. The object being to make it at once a convenient, practically useful, and comparatively inexpensive adjunct to the Furnaces, Forge and Rolling Mill.

CHARGES TO IRON WORKS.
For determining the per cent. of Pure Iron in
an ordinary Ore..... \$4.00
For the per cent. of Pure Iron Sulphur and
Phosphorus in do..... 12.50
For each additional constituent of usual occurrence..... 1.50
For those of unusual occurrence or difficult to determine, the charge must necessarily depend upon circumstances..... 7.00
For determining the per cent. of Sulphur or Phosphorus in Iron or Steel..... 5.00
For each additional constituent of usual occurrence..... 2.00
For the per cent. of Carbonate of Lime, and insoluble Silicious Matter in a Limestone..... 10.00
or each additional constituent..... 2.00
or the per cent. of Water, Volatile Combustible Matter, fixed Carbon and Ash in Coal..... 12.50
For determining the constituents of a Clay, Slag, Coke, or of an Ash in Coal, the charge is 10.00 per cent. for the first article, and 5.00 for each additional article.

For a written opinion or letter of instruction the charge must necessarily depend upon circumstances.

Printed instructions for obtaining proper average samples for analysis furnished upon application

"ECLIPSE" STOVE PIPE DAMPER. THE BEST YET MADE.



SIMPLE,
DURABLE,
CERTAIN IN
OPERATION.

Cannot get out of order. Only
Three Pieces. No Breakage,
Nickled or Wood Handle.

Liberal discount to the wholesale de
Samples free. Apply for price to the

DETROIT IRON AND BRASS MFG. CO.,

HOLLOW-WARE FOUNDERS,

DETROIT, MICH.

BE SURE YOU SEE THIS DAMPER BE-
FORE PURCHASING FOR FALL TRADE.

Philadelphia "STAR" Bolt Works.

NORWAY IRON



FANCY HEAD BOLTS,

Carriage & Tire Bolts. Star Axle Clips, &c.

TOWNSEND, WILSON & HUBBARD, 2301 Cherry Street, Philadelphia, Pa

BAEDER, ADAMSON & CO.

Manufacturers of SAND & EMERY PAPER & EMERY CLOTH.

(Also in Rolls, for machine work.)

Ground Emery, Corundum & Flint, Glue & Curled Hair, Hair Felt, & Felt

ing for Covering Boilers, Pipes, &c., Cow Hide Whips.

Stores: PHILADELPHIA, 730 Market St.; BOSTON, 143 Milk St.

NEW YORK, 67 Beekman St.; CHICAGO, 108 Lake St.

NATIONAL
BOLT
CUTTERS
GUARANTEED AHEAD OF ALL
OTHERS FOR MANUFACTURERS &
MACHINISTS.
SEND FOR CATALOGUE
1828 SENeca St. CLEVELAND

New York Wholesale Prices, June 30, 1880.

HARDWARE.

A ville.		
Eagle Anvils American	.....	% to doz 10% to 10¢ @ 10¢
W'r'nn's.	.....	... .9¢ to 9¢
Armitage's Mouse Hole	.....	... .9¢ to 9¢
Trenton	.....	10¢
Augers and Bits.		
Cou'n. Valley Mfg. Co.	.....
Douglas Mf. Co.	.....
Humphreysville Mfg. Co	.....
ves.	.....	dis 10%
Beecher (French, Swift & Co).	.....	from list of Jan 7, 1880.
G-iswold.	.....
Nobles Mfg. Co.	.....
Kasson's Patent.	.....
Cook's, Douglass Mfg. Co.	.....	dis 10% & 10%
Snell Mfg. Co s C. S. Augers.	.....	dis 10%
" B. Machine.	.....	dis 10%
" C. S. Bits.	.....	dis 10%
" Jennings's Bits.	.....	dis 15%
Patent Solid Head.	.....	dis 30%
Russell Jennings' Auger Dowel, Machine- dowel and Hand-Rail Bits.	.....	dis 10% & 10% & 10%
R'asell Jennings' Augers.	.....	dis 15% & 10% & 10%
R'asell Jennings' Car and Machine Bits, Boring- Machine and Millwrights' Augers	.....	dis 25% & 10% & 10% & 10%
Imitation Jennings' Bits.	.....	dis 400445
True Jennings' Bits.	.....	dis 315
And cws Bls.	.....	dis 10%
Expansive Bits, Clark's, small, size 1/8" lge. 3/8".	.....	dis 25%
" Ives.	.....	dis 20
" Blake's.	.....	dis 40%
" Parmelee's.	.....	dis 30
Hollow Augers Ives'	.....	dis 33%
French, Swift & Co.	.....	dis 15%
" Bonney's Adjust.	.....	dis 15%
" Stearns' Adjust.	.....	dis 25% & 10%
" Ives' Expansive.	.....	each \$4.00-dis 30%
" Univ'l Expansive, each \$4.00-dis 22%	.....
Gimlet Bits.	.....	\$7. 7¢ gross, dis 45%
" Diamond.	.....	dis 20% & 10%
" Bee".	.....	dis 45% & 10%
Double Cut Gimlet Bits Shepardson's.	.....	dis 20%
Col' Valley Mfg. Co.	.....	dis 20% & 10%
" Hart's".	.....	dis 20%
" Douglas".	.....	dis 10%
" Ives".	.....	dis 50%
Morse's Bit Stock Drill.	.....	dis 25%
L'Hommedieu's Ship Augers.	.....	dis 15%
Watrous Ship Augers.	.....	dis 15%
Awl Heads.		
Sewing Brass Ferrule.	.....	\$3.50 gross-dis 40% & 10%
Pag.	.....	3.50 " dis 40% & 10%
Patent Sewing, Short.	.....	\$1.00 % doz-dis 40% & 10%
" Long.	.....	\$1.40 % doz-dis 10%
Patent Peg Plain Top.	.....	\$10.00 % gross-dis 40% & 10%
" Leather Top.	12.00	dis 40% & 10%

Butts.	
Wrought Brass.	dis 30 %
Last Brass, Tisebouts.	dis 30 %
Corbin's.	dis 40 & 10 %
Fast Joint, Narrow.	dis 40 & 10 %
" Broad.	dis 40 & 10 %
Lever Joint.	dis 50 & 10 %
" Japanned.	dis 40 & 10 %
" with Acorns.	dis 55 & 10 %
Parliament Suite.	dis 45 & 10 %
Meyer's Hinges.	dis 50 & 10 %
Loose Pin no ACORN.	dis 50 & 10 %
" ACORNS, Japanned.	dis 50 & 10 %
Curtain Pins.—Silvered Glass.	net
White Knagel.	net
Cutter.	
Warden Cutlery Co. (Tables).	net
Miller Bro's Cutlery Co.	dis 25 %
Cutters.	
Embossed Gilt.	dis 20 %
Leather.	dis 30 %
Brass.	dis 25 %
Door Springs.	
Torrey's Rod.	W. dos \$2.10, dis 10 %
Gray's "	W. dos \$2.00, net
Bee Rod.	W. dos \$2.00, net
Gem (Coll.)	
No. 1, Large, Japanned.	W. dos \$3.50
No. 2, Medium.	W. dos 2.50, list net
No. 3, Small.	W. dos 2.00
Challenge (Coll.)	Nos. 9 7 6
Japanned.	W. dos \$2.00 2.50 3.00
Coppered.	W. dos 4.00 4.50 5.00
Gold Plated.	W. dos 5.50 6.00 6.50
Nickelled.	W. dos 4.00 4.50 5.00
Star (Coll.) For Card Nickel Plated.	W. dos 2.00 list
No. 4 ("Snoo Fly") Screen door size.	W. dos \$1.80
Screen Door Size.	W. dos \$2.00
No. 6, Medium.	W. dos 2.50
No. 7, Large.	W. dos 3.00
Sabin's Lever.	No. 1. \$1; 2. \$1.50; 3. \$2; 4. \$2.50; 5. \$3
Sabin's Boss.	No. 1. \$4; 2. \$4; 3. \$3; 4. \$3.50
Sabin's Crown.	W. GOR \$2.75, dis 25 %
Philadelphia.	.5 in. \$5.00; 1 in. \$7.00, dis 35 %
Porter's Concurred.	W. dis 20 %
Cowell's.	No. 1. \$1.00; No. 2. \$1.50 W. dos 20 %
Hammer, complete.	W. dos \$1.80, net
American Spiral Spring Butt Co., Jap'd.	Fancy.
Gem Spiral Spring Butta, Japanned.	Ornamental.
Geer's Single and Double Acting.	dis 25 %
Sabin Mfg. Co.'s Double Acting.	dis 35 %
Union Spiral Spring, Japanned.	Ornamental.
Union Spring Hinge Co.'s.	dis 25 %
American Spring Hinge Co.'s.	dis 25 %
Union Mfg. Co.	dis 25 %
Bonnet'.	dis 25 %
Bind Butts, Parker.	Palmer.
Seymour.	dis 50 & 10 %
Shepard's "Double Locking"	Nos. 1 & 2.
" Shepard's "Noiseless" Nos.	dis 50 & 10 %
" L. & P.	dis 50 & 10 %
" L. & P. & Porter.	dis 50 & 10 %
" Nicholson.	dis 45 & 10 %
" Huffer.	dis 35 & 10 %
" Clark's Nos. 1, 2, 3.	dis 50 & 10 %
" Sargent's No. 12.	dis 70 & 10 %
Bow Pins.	
Hotchkiss'.	low list net
Humason, Beckley & Co.'s (low list).	dis 10 %
Sargent & Co.	\$19.70 and \$21.10, dis 20 %
Butchers' Cleavers.	
Humason & Beckley Mfg. Co.	dis 20 %
Bradley's.	dis 25 %
Beatty's.	dis 25 & 10 %
1 2 3 4 5 6 7 8 \$16.50 19.00 21.00 24.00 27.00 30.00 33.50 36.00	
Can Openers.	
Messenger's Comet.	W. dos \$3.00, dis 25 %
American.	W. dos \$2.00, dis 20 %
Duplex.	W. dos 2.50, list dis 100% W. dos 1.50, dis 100%
Lyman's.	W. dos \$3.75, dis 20 %
French.	W. dos \$2.25, dis 20 %
No. 4, Iron Handie.	W. gross \$7, net
Eureka.	W. dos \$2.00, dis 10 %
Sardine Scissor.	W. dos \$7.00, dis 50 %
Star.	W. dos \$5.00, dis 10 %
Sprague.	W. dos 8, dis 10 %
Cartridges.—Metallic.	dis 60 %
Carbs.—Horse and Curry.	dis 10 %
Cotton.	dis 10 %
Wool.	dis 10 %
Car Pusher.—"Giant".	\$.02.25 each, dis 20 %
Cast Steel Stretchers.	
Cast Steel, Polished.	W. dos \$5.00, dis 30 %
Iron Steel Points.	W. dos \$2.00, dis 35 %
Casters.	
Bed.	dis 35 & 10 %
Plate and Shallow Socket.	dis 30 & 10 %
Deep Socket.	dis 25 %
Cattle Leaders.	
Humason, Beckley & Co.'s (low list).	dis 50 & 10 %
Sargent's.	dis 65 & 10 %
Chains.	
Trace, 6x1-2.	W. pair 70¢
" 6x4-10-3.	W. pair 70¢
" 7x2-10.	W. pair 80¢
German Chain.	W. pair 70¢
" Coil, New list Oct. 22, '79.	dis 30 & 10 %
Covert Haiter, Hitching and Bush.	dis 40 & 10 %
Omeida Haiter Chain.	dis 35 & 10 %
Galvanized Pump Chain.	W. dis 10 net
Cork Chain, Iron.	dis 45 %
Brass.	dis 40 %
Chalk.	
White.	W. gross 100 per box
Red.	W. gross 80 per box
Blue.	W. gross 100 per box
White Crayons.	W. gross 150 per box
Chisels.	
Socket Framing, Crossman.	dis 50 & 10 %
Buck Bros.	new list, dis 22 %
" Morrell.	dis 60 %
" Witherby Tool Co.	dis 60 %
" Firms.	dis 60 %
Crossman.	dis 50 & 10 %
Buck Bros.	new list, dis 22 %
" Merrill.	dis 60 %
" Witherby Tool Co.	dis 60 %
" Corner.	dis 60 %
Tanged Firms extra.	dis 35 & 10 %
Butcher's.	\$.50.00 @ \$2.50 to 2
Spear & Jackson's.	\$.50.00 to 2
Buck Bros (Shank).	\$.50.00
Clamps.	
Providence Tool Co.'s, Wrt. Iron.	dis 25 %
" Adjustable, Gray's.	dis 25 %
" Lambert's.	dis 25 %
" Snow's.	dis 50 & 10 %
" Hammer's.	dis 15 %
Cabinet, Sargent's.	dis 60 & 10 %
Carriage Makers', Sargent's.	dis 60 & 10 %
cord and Tape (T. & S. Mfg. Co.)	dis 30 %
Clips, Axe.	
Norway or Beat.	dis 40 & 10 %
upper.	dis 40 & 10 %
Coulo Hods.	
Crinths.	dis 20 %
Cockevers.	1 1/8 in. 2 1/8 in. 3 1/8 in. 3 3/8 in. 4 1/8 in. net
Cocks, Brass.	locking new list, Jan. 1, '80
loose.	dim 25 & 10 %
hair Bells.	" "
hair and Beer.	" "
Coffee Mills.	
board and Box.	new list, Jan. 1880, dis 35 %
increase Wilson's.	net
elser's Pat.	\$.50. 50. 50. 50. 50. net
American (Enterprise Mfg. Co.)	dis 25 %
reuch Steel.	dis 20 %
the Swift (Lane Bros.).	dis 10 %
Combined Dinner Pail and Lantern.	dis 100.
Coffers.	
Compasses, Dividers, &c.	dis 30 %
Compasses.	dis 45 %
Allipers.	dis 45 %
Dividers.	dis 45 %
Compass & Call Co. B.	dis 40 & 10 %
Compasses & Dividers.	dis 40 & 10 %
Wing & Inside or Outside.	dis 40 & 10 %
Double.	dis 60 %
Call's Pat. Inside.	dis 30 %
ook's.	dis 25 %
xcelson.	dis 25 %
Uter's Patent.	dis 25 %
Coopers' Tools.	
Bradley's.	dis 10 @ 20 %
Corkscrews.—Humason & B.	dis 135 %
Corn Kives and Cutters.	dis 10 & 10 %
adsworth's.	dis 135 %
Crow Bars.	ast Steel.
Steel Points.	W. dis 84¢
Curling Irons, &c.	W. dis 64¢
Clip.	\$.34 in. \$1.30 2.00 2.40.
curling Tong.	dis 10 %
inchin Irons.	W. dos \$1.64, dis 20 %
Carry Comb.	W. dos 7.50, dis 20 %
tch's (List of No. 240, \$1).	dis 40 %
ouchkin Novelty.	dis 20 %
Wrought Brass.	dis 30 %
last Brass, Tisebouts.	dis 30 %
Corbin's.	dis 40 & 10 %
Fast Joint, Narrow.	dis 40 & 10 %
" Broad.	dis 40 & 10 %
Lever Joint.	dis 50 & 10 %
" Japanned.	dis 40 & 10 %
" with Acorns.	dis 55 & 10 %
Parliament Suite.	dis 45 & 10 %
Meyer's Hinges.	dis 50 & 10 %
Loose Pin no ACORN.	dis 50 & 10 %
" ACORNS.	dis 50 & 10 %
Curtain Pins.—Silvered Glass.	net
White Knagel.	net
Cutter.	
Warden Cutlery Co. (Tables).	net
Miller Bro's Cutlery Co.	dis 25 %
Cutters.	
Embossed Gilt.	dis 20 %
Leather.	dis 30 %
Brass.	dis 25 %
Door Springs.	
Torrey's Rod.	W. dos \$2.10, dis 10 %
Gray's "	W. dos \$2.00, net
Bee Rod.	W. dos \$2.00, net
Gem (Coll.)	
No. 1, Large, Japanned.	W. dos \$3.50
No. 2, Medium.	W. dos 2.50, list net
No. 3, Small.	W. dos 2.00
Challenge (Coll.)	Nos. 9 7 6
Japanned.	W. dos \$2.00 2.50 3.00
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Gold Plated.	W. dos 5.50 6.00 6.50
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Sabin's Lever.	No. 1. \$1; 2. \$1.50; 3. \$2; 4. \$2.50; 5. \$3
Sabin's Boss.	No. 1. \$4; 2. \$4; 3. \$3; 4. \$3.50
Sabin's Crown.	W. GOR \$2.75, dis 25 %
Philadelphia.	.5 in. \$5.00; 1 in. \$7.00, dis 35 %
Porter's Concurred.	W. dis 20 %
Cowell's.	No. 1. \$1.00; No. 2. \$1.50 W. dos 20 %
Hamer, complete.	W. dos \$1.80, net
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Gem Spiral Spring Butta, Japanned.	Ornamental.
Geer's Single and Double Acting.	dis 25 %
Sabin Mfg. Co.'s Double Acting.	dis 35 %
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American Spring Hinge Co.'s.	dis 25 %
Union Mfg. Co.	dis 25 %
Bonnet'.	dis 25 %
Bind Butts, Parker.	Palmer.
Seymour.	dis 50 & 10 %
Shepard's "Double Locking"	Nos. 1 & 2.
" Shepard's "Noiseless" Nos.	dis 50 & 10 %
" L. & P.	dis 50 & 10 %
" L. & P. & Porter.	dis 50 & 10 %
" Nicholson.	dis 45 & 10 %
" Huffer.	dis 35 & 10 %
" Clark's Nos. 1, 2, 3.	dis 50 & 10 %
" Sargent's.	dis 60 & 10 %
Bradley's.	dis 20 %
Witherby Tool Co.	dis 25 %
Wright's.	dis 25 & 10 %
Hotchkiss'.	dis 25 %
Challenge Anti-Friction.	dis 10 %
Sterling Improved (Anti-Friction).	dis 10 %
Chartrree's.	dis 20 %
Kidder's.	dis 40 %
Harness Snaps.	
Henshaw's.	List of 14 changed to 14.00, dis 55 & 2 %
Judd's.	" " 14.00, dis 54 & 2 %
Fit'h's (Bristol)	" " 14.00, dis 40 %
Hotchkiss'.	dis 10 %
Sargent's.	dis 60 & 10 %
Conestoga.	dis 10 %
J. H. McWilliams.	dis 10 %
A. E. Dietz.	dis 10 %
Hammers.	
Maydole's.	dis 15 %
Cheney's.	dis 25 %
H. Hammonds (new list Jan. 20, '80).	dis 20 %
Verree.	dis 5 %
Magnetic Taek, Nos. 1, 2, 3, \$1.25, 1.50 and 1.75.	dis 20 & 10 %
Warner & Noble's.	dis 10 %
Kid's (old list).	dis 15 %
Yerkes & Plumb.	dis 15 %
Hand Cuffs and Leg Irons.	
Providence Tool Co.'s Hand Cuffs, \$15.00 W. dos	10 %
" Leg Irons, \$25 W. dos 10 %	10 %
Tower's.	dis 25 %
Handles.—Door or Thumb Latches—	
Nos.	1 2 3 4
Per doz.	\$.80 1.00 1.18 1.20
Per doz.	1.00 1.18 1.20 1.25
Roggins' Latches.	per doz 40c 40c 45c net
Bronzed Iron Drop Latches.	W. dos \$0.90 @ 1.15 net
Jap'd Store Door Handles-Nuts.	\$2.00 Plate \$1.35
no Plate.	\$1.08
Yerkes & Plumb.	net
Barn Door.	per doz \$1.85, dis 10 %
Wrought Chest.	W. dos 10 %
Surface Chest, Sergeant's List.	W. dos 12 & 10 %
Flush Chest.	W. dos 10 %
Lifting.	W. dos 10 %
Saw and Plane.	W. dos 10 & 10 %
Boynont's Pat. Loop Saw Handles.	Centennial Saw Handles
Hammer and Hatchet.	W. dis 20 %
Brad Awl.	gross \$3.00, dis 20 & 10 %
Hickory Firmer Chisel, assorted, W. gross	\$4.00
Blacksmiths' Self Feeding.	large
Bread.	W. gross 5.00
Brazier's.	W. gross 6.00
Hotchkiss'.	W. gross 7.00
Challenge Anti-Friction.	W. gross 8.00
Sterling Improved (Anti-Friction).	W. gross 8.00
Chartrree's.	W. gross 8.00
Kidder's.	W. gross 8.00
W. gross 8.00	W. gross 8.00
Hairpins.	W. gross 8.00
Hotchkiss'.	W. gross 8.00
Challenge Anti-Friction.	W. gross 8.00
Sterling Improved (Anti-Friction).	W. gross 8.00
Chartrree's.	W. gross 8.00
Kidder's.	W. gross 8.00
W. gross 8.00	W. gross 8.00
Hairpins.	W. gross 8.00
Hotchkiss'.	W. gross 8.00
Challenge Anti-Friction.	W. gross 8.00
Sterling Improved (Anti-Friction).	W. gross 8.00
Chartrree's.	W. gross 8.00
Kidder's.	W. gross 8.00
W. gross 8.00	W. gross 8.00
Hairpins.	W. gross 8.00
Hotchkiss'.	W. gross 8.00
Challenge Anti-Friction.	W. gross 8.00
Sterling Improved (Anti-Friction).	W. gross 8.00
Chartrree's.	W. gross 8.00
Kidder's.	W. gross 8.00
W. gross 8.00	W. gross 8.00
Hairpins.	W. gross 8.00
Hotchkiss'.	W. gross 8.00
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Chartrree's.	W. gross 8.00
Kidder's.	W. gross 8.00
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Hairpins.	W. gross 8.00
Hotchkiss'.	W. gross 8.00
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Chartrree's.	W. gross 8.00
Kidder's.	W. gross 8.00
W. gross 8.00	W. gross 8.00
Hairpins.	W. gross 8.00
Hotchkiss'.	W. gross 8.00
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Chartrree's.	W. gross 8.00
Kidder's.	W. gross 8.00
W. gross 8.00	W. gross 8.00
Hairpins.	W. gross 8.00
Hotchkiss'.	W. gross 8.00
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Sterling Improved (Anti-Friction).	W. gross 8.00
Chartrree's.	W. gross 8.00
Kidder's.	W. gross 8.00
W. gross 8.00	W. gross 8.00

Steel.

WOLFF, KAHN & CO.,SUCCESSORS TO
R. H. WOLFF & CO.,

MANUFACTURERS, IMPORTERS, EXPORTERS & GENERAL MERCHANTS

MANUFACTURERS OF

CAST STEEL WIRE for all Purposes, Special Wire, Market Steel Wire, Prime Coppered Spring Wire, and of all Kinds of Furniture Springs, &c.

IMPORTERS OF

**IRON & STEEL, WIRE RODS,
GUN BARRELS, MOULDS & ORDNANCE.**

EXPORTERS AND GENERAL MERCHANTS.

Direct all communications to

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**MILLER, METCALF & PARKIN,
Pittsburgh, Pa.,**

Manufacturers of

CRESCENT STEEL,

In Bars, Sheets, Cold-Rolled Strips, &c.

Polished, Compressed Drill Rods and Wire,

Warranted equal to any imported in quality, finish and accuracy.

Also Common Grades.

Established 1810.

**J. & RILEY CARR,
SHEFFIELD, ENGLAND.**Manufacturers of the "Celebrated
"DOG BRAND" FILES.
Also of Superior**STEEL**

Drills, Cold Chisels, Tools, Taps, Dies, &c.

COLD ROLLED STEEL for Clock Springs, Corsets, &c.
SHEET CAST STEEL for Springs, Saws, Welding and Stamping Cold, &c.
GERMAN, MACHINERY, ENGLISH AND SWEDISH SPRING STEEL,
no all other descriptions for machinists and agricultural purposes.

Warehouse, 30 Gold Street, New York.



HENRY MOORE, Agent.

Near John Street.

Steel.

THE EDGAR THOMSON STEEL CO.,
LIMITED.

MANUFACTURERS OF

STEEL RAILS, BLOOMS & INGOTS

General Office and Works at Bessemer Station (Penn. R. R.), Allegheny County, Pa.

New York Office, 57 Broadway.

The Company warrants its rails equal in quality to any manufactured in the United States.

Branch Office and P. O. Address, No. 48 Fifth Ave., Pittsburgh, Pa.

THOS. M. CARNEGIE,
Chairman.D. A. STEWART,
Sec'y and Treas.

North Chicago Rolling Mill Co.

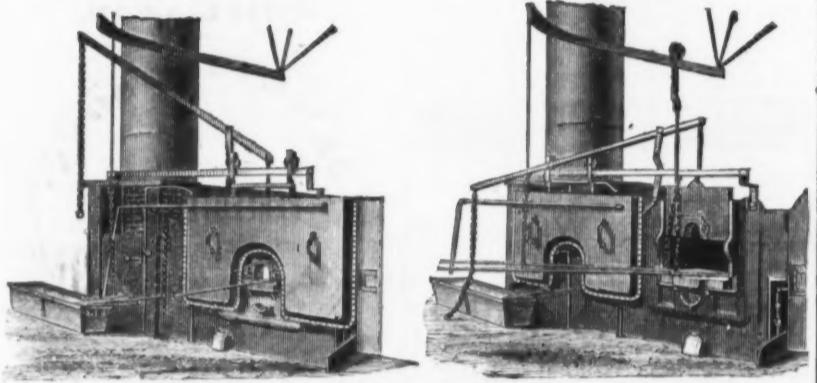
ESTABLISHED 1857.

CAPITAL, \$3,000,000.

INCORPORATED 1869.

Works at Chicago, Ill., and Milwaukee, Wis.

MANUFACTURERS OF

MERCHANT BAR, FISH PLATES, PIG METAL,
IRON RAILS & BESSEMER STEEL RAILS.CAPACITY OF WORKS.
FISH PLATES.....
Merchant Bar.....
Pig Metal.....
Iron Rails.....
Steel Rails.....
Total Capacity per year.....25,000 tons.
40,000 " " "
80,000 " " "
80,000 " " "
80,000 " " "
280,000 "OFFICES:
17 Metropolitan Block, Chicago, Ill.
37 Mitchell Block, Milwaukee, Wis.O. W. POTTER, President, CHICAGO.
S. P. BURT, Vice-President, NEW BEDFORD.
S. CLEMENT, Treasurer, MILWAUKEE.
R. C. HANNAH, Secretary, CHICAGO.McDONALD'S
PATENT SHIELD.For Protecting the Men from Heat when Working in Front of
Puddling, Heating and other Furnaces.H. McDONALD, Patentee,
MANAGER SLIGO ROLLING MILLS,

PITTSBURGH, PA.

PYROLUSITE MANGANESE COMPANY,
MINERS, DEALERS AND EXPORTERS OF HIGH TEST
Crystallized Black Oxide of
Manganese

IN CRUDE STATE.

Suitable for the manufacture of Ferro-Manganese, Spiegeleisen, Bessemer Pig, &c. Also, fine ground
and granulated, especially prepared for

STEEL, GLASS, PAINT, VARNISH and DRYER MAKERS, OIL BOILERS, &c.

MANUFACTURERS OF SUPERFINE FLOATED

Standard Barytes, Gritless Ochre, Borate of Manganese, &c.
Office, 54 Cliff Street, New York.

MERIAM & MORGAN PARAFFINE CO.

CLEVELAND, O.

Manufacturers of

Cold Pressed Paraffine Oil,
Refined Paraffine Wax,

AXLE GREASE,

And a full line of

Railway, Machinery, Signal and
Miners' Oils.

AXLE GREASE AGENCIES:

ROBINSON, LORDE & CO., NEW YORK.

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BRANCH OFFICES:

32 Oliver Street, Boston.

143 Front Street, New York.

Philadelphia Smelting Co.,
S. E. Cor. Twelfth and Noble Sts., PHILADELPHIA.

GENUINE BABBITT,

Guaranteed at a speed of 10,000 a minute, and at any pressure for 10 years.

DEOXIDIZED BRONZE,

Superior to Phosphor Bronze or any other alloy of Copper and Tin for Machinery Journals.

PHILADELPHIA, October 4, 1880.

"Deoxidized Bronze" as journal boxes in our rolling mill, where great pressure is required, we take pleasure in recommending it as being superior to any we have heretofore used.

Very truly, HENRY DISSTON & SONS.

WIRE NAILS

French Points,

Window Shade Nails,

Upholstering, WAGON NAILS, Molding Nails

Electrotype,

Barbed Caster Nails.

Roofing Nails,

(Sample Cards sent on application.)

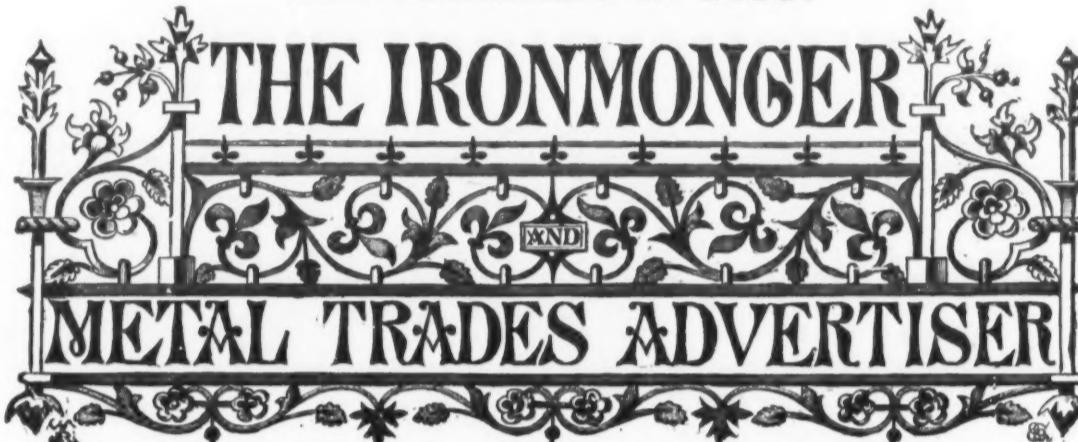
Veneer Nails, Label Tacks and small Nails of all kinds, Cabinet Nails, Barbed Lock Na

Cigar Box Nails, &c., &c., put up in bulk, 5 lb. packages,

AMERICAN WIRE NAIL CO.
Factory, Fifteenth and Madison Sts.

COVINGTON, KY.

ESTABLISHED IN 1859.



PUBLISHED EVERY SATURDAY.

THE OLDEST AND CHIEF REPRESENTATIVE OF THE IRON, HARDWARE AND METAL TRADES.

OFFICE: 44a CANNON STREET, LONDON, E. C.

ADVERTISEMENTS AND SUBSCRIPTIONS ARE RECEIVED AT THE VARIOUS OFFICES OF "THE IRON AGE," NAMELY

NEW YORK OFFICE: DAVID WILLIAMS, Publisher of *The Iron Age*, 83 Reade street.

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CINCINNATI OFFICE: Builders' Exchange—T. T. MOORE, Manager.

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SPECIAL FEATURES.

Notes of Novelties.—This is a department of the journal always watched with interest by the trade, as it contains an account, from week to week, of the novelties which manufacturers and inventors are introducing to the notice of the trade. These articles are freely illustrated.

Editorial Correspondents.—The *Ironmonger* has a deserved reputation for its special and general knowledge of all the principal Continental, British and manufacturing countries. The writers are generally holding important positions in those districts with which they are connected, and possess facilities for acquiring information specially suited to the columns of the *Ironmonger*. *The Week, Legal News, Trade Notes, Banking News, Foreign Notes, Colonial Settlements, Merchants' Circulars, &c.*, are each departments of the journal, containing a digest of all matters of direct interest to the Iron, Hardware and Metal Trades. In addition to the above, there is a carefully classified list of Patents, together with Editorial Notes, French, Belgian and other Special Correspondence.

SUBSCRIPTIONS

To the *Ironmonger and Metal Trades' Advertiser*, with which is sent every fourth week the Foreign Supplement (see below), may commence from any date, but are not received for less than a year complete. The rate is \$5. per annum, inclusive of postage to any part of the world outside Great Britain, To every subscriber is presented, free, in the course of his year, a handsome and useful *Ironmongers' Diary and Text Book*, a work sold to non-subscribers at 75 cents.

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In the spring and autumn of each year there is published a Special Issue, the circulation of which is not less than **Twelve Thousand (12, 00) copies**.

THE IRONMONGERS' DIARY AND TEXT BOOK.

This is an annual, presented free to every Subscriber to the *IRONMONGER AND METAL TRADES' ADVERTISER*. It contains a large number of ruled skeleton pages for diary and other entries, and in addition much useful reference information, varied from year to year. It is handsomely bound in cloth, gilt; and as copies are used in thousands of establishments for a whole year, it is obviously a medium of exceptional value for advertisements. Sold to non-subscribers at 75 cents.

THE FOREIGN SUPPLEMENT

Is published every fourth week in connection with the extensive and world-wide circulation of the *Ironmonger* itself. The dates of its publication for the next twelve months will be as follows:

JULY 24, AUGUST 21, SEPTEMBER 18, OCTOBER 16, NOVEMBER 13, DECEMBER 11, JANUARY 8, 1881, FEBRUARY 5, MARCH 5, APRIL 2 and 30, MAY 28, JUNE 25.

This Supplement is published in

FIVE LEADING COMMERCIAL LANGUAGES

of the world, including English, and is sent to all the countries where they are spoken, thus placing the contents of the *Ironmonger* not only within reach in the native language of eighty millions of German, forty-two millions of French, twenty-eight millions of Italian, and fifty-one millions of Spanish speaking people; or, in all, over two hundred millions of inhabitants in the principal nations where the best purchasers of manufactured goods are to be found.

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One-third page.....	12.50	14.10	15.65		3.20	3.40	4.00

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THE WHOLE FOREIGN HARDWARE TRADE,

so far as our experience of twenty years is concerned, will be covered by THE FOREIGN SUPPLEMENT at least twice a year. Thus a Price List or Advertisement inserted in the *Ironmonger* and *Foreign Supplement* is a strikingly powerful and most efficient way of publicity not to be compared with any of the other ordinary channels of communication.

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FIRE BRICK.
BEST AND CHEAPEST.
Established 1845.
Office, foot of Houston Street, East River,
NEW YORK.

NEWTON & CO.,
ALBANY, N. Y., Manufacturers of
FIRE BRICK
Stove Linings,
Range and Heater Linings
Cylinder Brick, &c., &c.

M. D. Valentine & Bro
Manufacturers of
FIRE BRICK

And Furnace Blocks
DRAIN PIPE & LAND TILE.
Woodbridge, - - - N. J.

BORGNER & O'BRIEN,
Manufacturers
FIRE BRICK

Edge Pressed Furnace Blocks,
CLAY RETORTS, TILES, &c.,
Twenty-third Street,
Above Race, PHILADELPHIA.
Twenty years' practical Experience.

PERTH AMBOY TERRA COTTA CO.,
Successors to
A. HALL & SONS, Perth Amboy, N. J.,
ARCHITECTURAL TERRA COTTA
AND
FIRE BRICK.
170 Broadway, NEW YORK.

Brooklyn Clay Retort
AND
FIRE BRICK WORKS.

Manufacturers of Clay Retorts, Fire Brick, Gas
House and other Tile, Cupola Brick, &c., Retorts in
all sizes, also Fire Sand, Clay Banks, &c.,
Buri's Creek, New Jersey. Manufactury: Van Dyke,
Elizabeth, Richards and Partition Sts., Brooklyn, N. Y.
Office: No. 88 Van Dyke St.

Watson Fire Brick Manufactory,
ESTABLISHED 1850.
JOHN R. WATSON, Perth Amboy, New Jersey.
Manufacturer of

FIRE BRICK,
For Rolling Mills, Blast Furnaces, Foundries,
Gas Works, Lime Kilns, Tanneries, Boiler
and Grate Setting, Glass Works, &c.
Fire Clays, Fire Sand, and Kaolin for Sale.

HENRY MAURER,
Proprietor of the
Excelsior Fire Brick & Clay
Retort Works,
Manufacturer of FIRE BRICK, HOLLOW
BRICK AND CLAY RETORTS.
WORKS: Perth Amboy, NEW JERSEY.
Office & Depot, 418 to 422 East 23d St., N. Y.

TROY FIRE BRICK WORKS,
Troy, N. Y.
JAMES OSTRANDER & SON,
ESTABLISHED 1858,
Manufacturers of

FIRE BRICK,
Tuyeres, Tiles, Blast Furnace Blocks, &c., Miners and
Dealers in Woodbridge Fire Clay and Sand, and Staten
Island Kaolin.

Established 1864.
GARDNER BROTHERS.
Manufacturers of
STANDARD SAVAGE FIRE BRICK,
TILE & FURNACE BLOCKS,
OF ALL SHAPES AND SIZES.

Clay Gas Retorts and Retort Settings, and
Miners and Shippers of Fire Clay.

OFFICE: 116 Smithfield St., Pittsburgh, Pa.

WORKS: Mt. Savage Junction, Md., and Lockport, Pa.

HALL & SONS,
FIRE BRICK,
Buffalo, N. Y.

MILLER'S BRICK PRESSES
(Established 1844),
FIRE and RED BRICK,
And Brickmakers' Tools in General.
SAM'L. P. MILLER & SON,
309 South 5th St., Philadelphia.

RUDOLPH FRANK,
Office, 229 FULTON STREET,
NEW YORK.
ALUMINA and
SILICA

Works,
BROOKLYN, on
the East River.
Through Cars, Canal Boats
and Vessels loaded direct from the
Works to all points.

FIRE BRICKS

PURE SILICA FIRE BRICK, MADE BY THE **Landore Siemens Company,**

Specially for OPEN-HEARTH FURNACES.

More "heats" obtained from them than from any other Bricks known.

Imported, to order only, by

PHILIP S. JUSTICE, Sole Agent in United States,
14 NORTH FIFTH STREET, PHILADELPHIA.

Common Sense Band Cutter, A Perfect Tool, for Cutting and Removing Twine or Wire Bands from Bundles of Grain Before Threshing.

The only Band Cutter that does not grasp several strands with the band, is absolutely certain in its operations, and does not fatigue the hand. It will cut, grasp and remove wire, string or paper bands by one single movement. No squeezing, no chafed hands, no blisters, no shears, no slow, hard work, and while threshing it will pay for itself every hour.

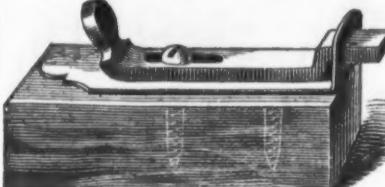
EVERY FARMER MUST HAVE ONE
For use with his Self-Binder during the harvest, and when threshing he can save all of the binding material. Price \$9.00 per dozen, net.

Directions.—Push into bundle, pull out, and by the same movement (or swing of the arm) push point lightly against a board standing in a post to discharge the band. The knife being self-sharpening always preserves its position.

[For cutting off the ends of wire, push curved end of knife with thumb, and pull the other end with finger.]



HYATT'S PATENT SPRING BOLT.



Patented Jan. 29th, 1878.

For Fastening Cabinet Ware, Closet and House Doors, &c.

We call the attention of the trade to these Wrought Brass and Iron Bolts, as being the best and cheapest in the market. Sizes, two inches and upward, both plain and neck bolts. Two sets of fastenings bolt and nut, cost 10c. each, others are 15c. and up. The bed-plates are made of brass, from which the spring is cut and raised, upon which the bolt slides with an easy, elastic movement, saving expense of screws and producing a strong, handsome and cheap bolt. Price list furnished on application.

BRASS GOODS MFG. CO.,
43 Chambers St., New York.

We also manufacture all kinds of Brass and Tin Goods, Drop Bases, Thimbles and Boxes for Door Knobs, Plate Escutcheons, Brass Labels, Patent Mirror Business Cards, &c.

Established 1838

Bevin Bros. Mfg. Co.,

Easthampton, Ct.

Manufacturers of

SLEIGH BELLS,

House, Tea, Hand,

Gong Bells, &c.

Bell Metal Kettles.

WESTON DYNAMO-ELECTRIC MACHINE

NICKEL.

The rapid increase in the use of Nickel-Plating owing to the introduction of the Weston Machine and the very low price of nickel material, enables us to give greatly reduced estimates for complete outfitts.

We are furnishing outfitts specially adapted for Stove Work, giving a white deposit on plain or mat surfaces.

Outfits complete, with Dynamo-Electric Machine, Tanker, Generator, Solution, &c., &c.

We beg to refer to the following Stove Manufacturers among so other houses using the Weston Machine: Richardson & Boynton, S. S. Jewett & Co., Fuller, Warren & Co., Perry & Co., Detroit Stove Works, Michigan Stove Co., Co-operative Stove Co., E. & C. Gurney, Hamilton & Toronto, and many others.

INFRINGEMENTS.

We call attention to infringements of the Weston Machine, in which Automatic Switches are used to prevent change of current. The Weston Co. are owners by far the largest of all forms of Automatic Switches for Electric Machines. The adoption of these machines will certainly lead to great loss to parties purchasing or using them.

CONDIT, HANSON & VAN WINKLE
Sole Agents NEWARK, N.J. U.S.A.

NEW YORK OFFICE, 92 & 94 Liberty St.

ENGLISH AGENCY: 18 Caroline Street, Birmingham.

The Leading Wringer of

America.

SIMPSON & GAULT,
(Peerless Wringer Co.)

European Offices,
New York Office, Place Vendome, Paris.
79 Chambers St. 7 Poultry, London.

Office and Factory,
CINCINNATI, OHIO.

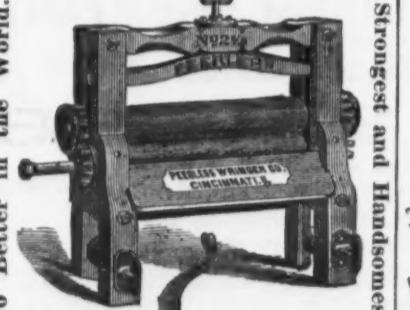
PEERLESS

Clothes Wringers,

Sold by the Jobbing Trade everywhere.

No Better in the World.

Strongest and Handiest.



Most Saleable Wringer in the Market.

TRY A SAMPLE ORDER.

Also the Standard Improved Power Gold
by the pound at lowest prices.

Users of Shafting
Should TRY THE

Positive Lubricator

Cheapest and cleanest.

No drip, no waste.

Warranted not to gum.

Feed according to speed of shaft.

W. J. FAUL,

Patentee & Sole

Manufacturer,

218 Centre St.,

New York.

Send for circular.

LAMONT

PATENT

COMBI-NATION

RAZOR

STROP,

Manufactured by COPELAND, HALL & Co.

(Successors to H. O. Hall & Co.),

Rochester, N. Y.

SHARPENERS OF

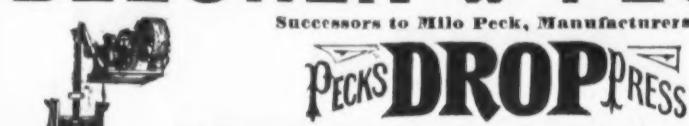
SHOES, RAZORS, SCISSORS,

SCREWDRIVERS, SCREW

SCREWDRIVERS

BEECHER & PECK,

Successors to Milo Peck, Manufacturers of



11 Regular Sizes. Hammers from 50 lbs. to 2500 lbs.
WE HAVE A LARGE STOCK OF SPECIAL DROP PATTERNS.

Special attention given to the making of all Drop Dies.
Special Machinery fitted up to order.

Send for Price List.

New Haven, Conn.

IMPROVED PIPE-FITTERS' VISE.



STRONG,
LIGHT,
EFFICIENT,
CHEAP.

PRICE, \$8.00.

To meet the requirements of the large number of persons who have use for such an article, we invite attention to our Improved Pipe Vise. This you can be used either as a permanent fixture to your bench, or to a portable case (which other tools have been put in), or of any Machinist's or Blacksmith's Vise ; the removable jaw being OPEN ON SIDE permits work to be held firmly at any desired point without slipping it from end, and allows of FITTINGS BEING HELD securely ; the Box is made of Malleable Iron, the Screw of Wrought Iron, and the remainder of Solid Steel throughout. The Steel Gripping Jaws can be duplicated and replaced at any time when worn out. It is a very convenient tool, well adapted to the wants of Plumbers, Pump Fitters, Well-Drivers, and all who have use for a tool that is strong, light, efficient and cheap which can be readily carried about with kit of tools.

MANUFACTURED BY
PANCOAST & MAULE,
243 and 245 South Third Street, Philadelphia.

THE COLUMBIA BICYCLE.



Bicycle riding is unsurpassed as a method of traveling, whether for speed, sport or the renewal of health. No horse can compare with the Bicycle for endurance ; no other pastime is half so fascinating, and the exercise is recommended by the medical profession as being most conducive to health. Appleyard rode 100 miles over a common turnpike road in 7 hours, and Waller has accomplished 1400 miles in 6 days.

Send 3-cent stamp for 24-page catalogue containing price-lists and full information, or 10 cents for catalogue and copy of "The Bicycling World."

THE POPE MFG. CO.

No. 65 Summer Street,
BOSTON, MASS.

LATHROP'S

SELF-FEEDING RATCHET DRILL

The only Ratchet drill that combines Simplicity, Efficiency and Durability with a perfectly reliable and powerful Self-Feed, capable of being instantly adjusted to any required cut. We guarantee our Ratchet to do twice the amount of work that can be done by any other ratchet in the market. To responsible parties we send a sample Ratchet for 30 days' trial.

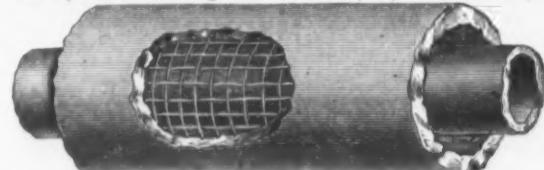


SEND FOR PRICELIST.

LATHROP & CO.,
NEWARK, N. J.

ASBESTOS MATERIALS, FIBER, MILLBOARD, PACKING & CEMENT.
THE NATIONAL STEEL TUBE CLEANER.
Saves its cost every time it is used.

The Patent "Air Space" Coverings for Steam Pipes, Hot-Blast Pipes, Boilers, &c.



Plastic or Hair Felt, with or without the Patent "Air Space" Improvement.
THE CHALMERS-SPENCE CO., foot 9th St., E. R., New York.

T. C. CONWAY, 90 Chambers Street, New York,



Sole Agent for

THE RED JACKET REVOLVER,

Rupertus' Revolvers, Breech-load-

ing Shot Guns and Rifles; Nichols Cutlery Co.'s Table Knives and Forks; Star Cutlery Co.'s Pocket Knives.

Rupertus' Single Breech-Loading Shot Gun, Twist Barrel.

M. RUMSEY & CO.

MANUFACTURERS & JOBBERS OF

PUMPS & FIRE ENGINES.

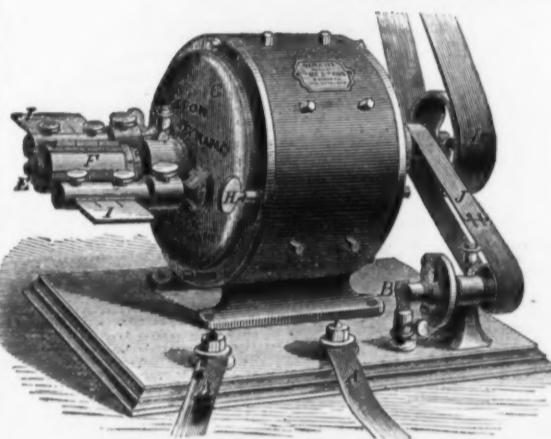


Manufacturers of GALVANIZED PUMP CHAIN FOR CHAIN PUMPS.

WESTON DYNAMO-ELECTRIC MACHINE CO.

286 Washington Street, Newark, N. J., U. S. A.,
N. E. Weston Electric Light Co., 10 Herald Building, Boston, Mass.,
MANUFACTURERS OF

Machines for Electric Light, Electrotyping and Electro-Plating.



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THE MOST POWERFUL, SIMPLE AND COMPACT ELECTRIC LIGHT MACHINE IN THE WORLD.

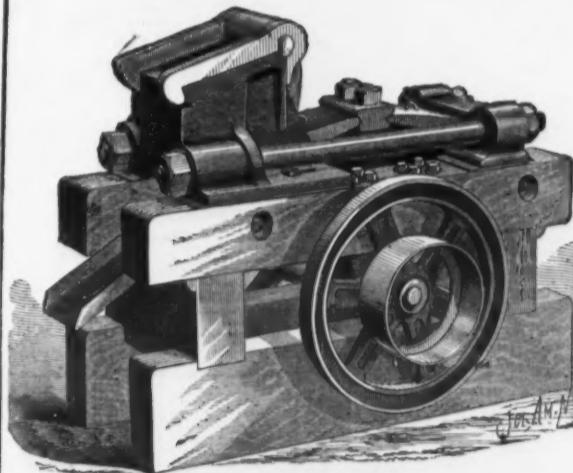
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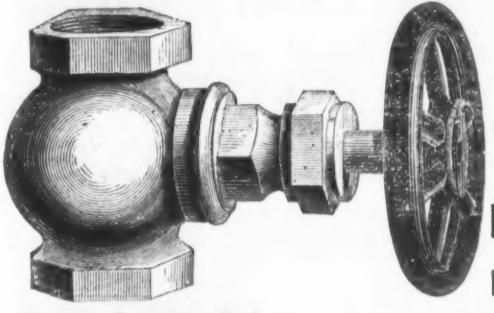
No. 100 00 00 0 1 2 3 30 lbs.

No. 125 4 2.00 2.75 3.25 4.00 4.50

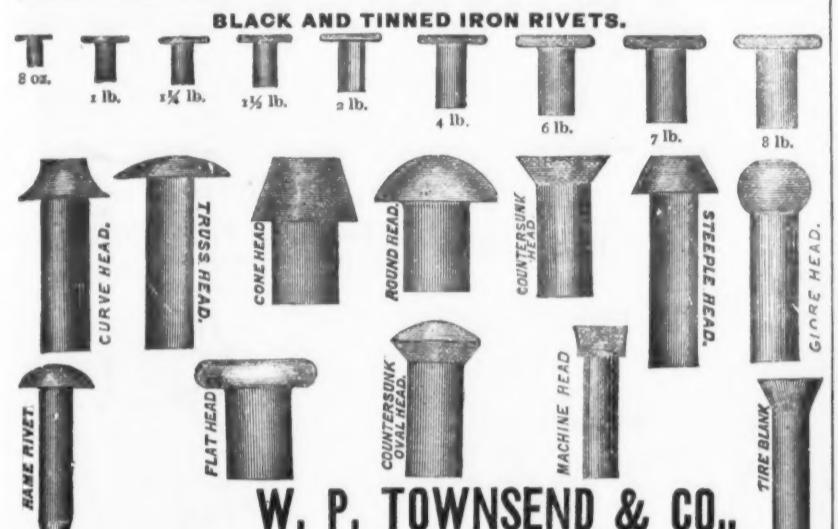
No. 140 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 50 lbs.

Weighing about 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140 1150 1160 1170 1180 1190 1200 1210 1220 1230 1240 1250 1260 1270 1280 1290 1300 1310 1320 1330 1340 1350 1360 1370 1380 1390 1400 1410 1420 1430 1440 1450 1460 1470 1480 1490 1500 1510 1520 1530 1540 1550 1560 1570 1580 1590 1600 1610 1620 1630 1640 1650 1660 1670 1680 1690 1700 1710 1720 1730 1740 1750 1760 1770 1780 1790 1800 1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100 2110 2120 2130 2140 2150 2160 2170 2180 2190 2200 2210 2220 2230 2240 2250 2260 2270 2280 2290 2300 2310 2320 2330 2340 2350 2360 2370 2380 2390 2400 2410 2420 2430 2440 2450 2460 2470 2480 2490 2500 2510 2520 2530 2540 2550 2560 2570 2580 2590 2600 2610 2620 2630 2640 2650 2660 2670 2680 2690 2700 2710 2720 2730 2740 2750 2760 2770 2780 2790 2800 2810 2820 2830 2840 2850 2860 2870 2880 2890 2900 2910 2920 2930 2940 2950 2960 2970 2980 2990 3000 3010 3020 3030 3040 3050 3060 3070 3080 3090 3100 3110 3120 3130 3140 3150 3160 3170 3180 3190 3200 3210 3220 3230 3240 3250 3260 3270 3280 3290 3300 3310 3320 3330 3340 3350 3360 3370 3380 3390 3400 3410 3420 3430 3440 3450 3460 3470 3480 3490 3500 3510 3520 3530 3540 3550 3560 3570 3580 3590 3600 3610 3620 3630 3640 3650 3660 3670 3680 3690 3700 3710 3720 3730 3740 3750 3760 3770 3780 3790 3800 3810 3820 3830 3840 3850 3860 3870 3880 3890 3900 3910 3920 3930 3940 3950 3960 3970 3980 3990 4000 4010 4020 4030 4040 4050 4060 4070 4080 4090 4100 4110 4120 4130 4140 4150 4160 4170 4180 4190 4200 4210 4220 4230 4240 4250 4260 4270 4280 4290 4300 4310 4320 4330 4340 4350 4360 4370 4380 4390 4400 4410 4420 4430 4440 4450 4460 4470 4480 4490 4500 4510 4520 4530 4540 4550 4560 4570 4580 4590 4600 4610 4620 4630 4640 4650 4660 4670 4680 4690 4700 4710 4720 4730 4740 4750 4760 4770 4780 4790 4800 4810 4820 4830 4840 4850 4860 4870 4880 4890 4900 4910 4920 4930 4940 4950 4960 4970 4980 4990 5000 5010 5020 5030 5040 5050 5060 5070 5080 5090 5100 5110 5120 5130 5140 5150 5160 5170 5180 5190 5200 5210 5220 5230 5240 5250 5260 5270 5280 5290 5300 5310 5320 5330 5340 5350 5360 5370 5380 5390 5400 5410 5420 5430 5440 5450 5460 5470 5480 5490 5500 5510 5520 5530 5540 5550 5560 5570 5580 5590 5600 5610 5620 5630 5640 5650 5660 5670 5680 5690 5700 5710 5720 5730 5740 5750 5760 5770 5780 5790 5800 5810 5820 5830 5840 5850 5860 5870 5880 5890 5890 5900 5910 5920 5930 5940 5950 5960 5970 5980 5990 5990 6000 6010 6020 6030 6040 6050 6060 6070 6080 6090 6090 6100 6110 6120 6130 6140 6150 6160 6170 6180 6190 6190 6200 6210 6220 6230 6240 6250 6260 6270 6280 6290 6290 6300 6310 6320 6330 6340 6350 6360 6370 6380 6390 63

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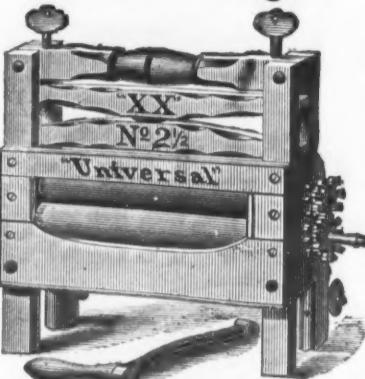
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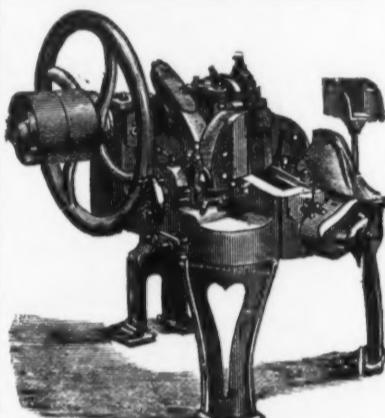
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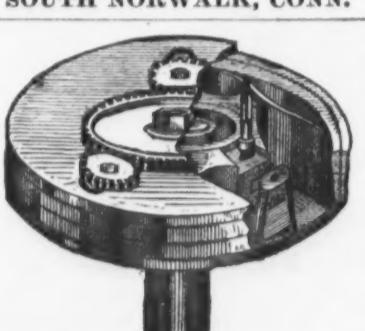
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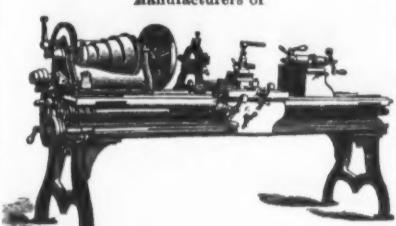
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" 34 in., No. NN, dis 20%

" 34 in., No. PP, dis 20%

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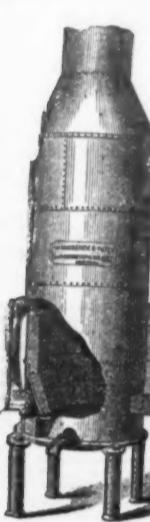
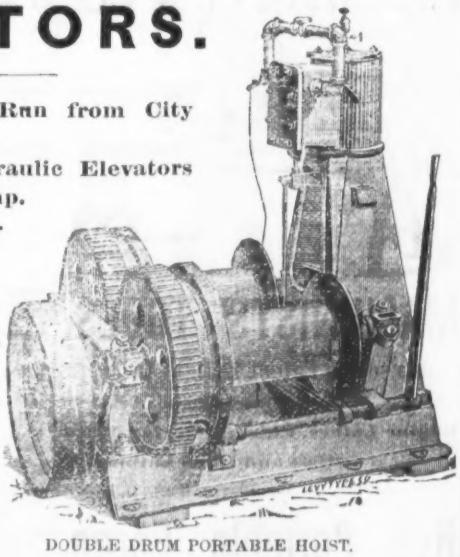
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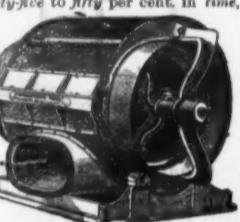
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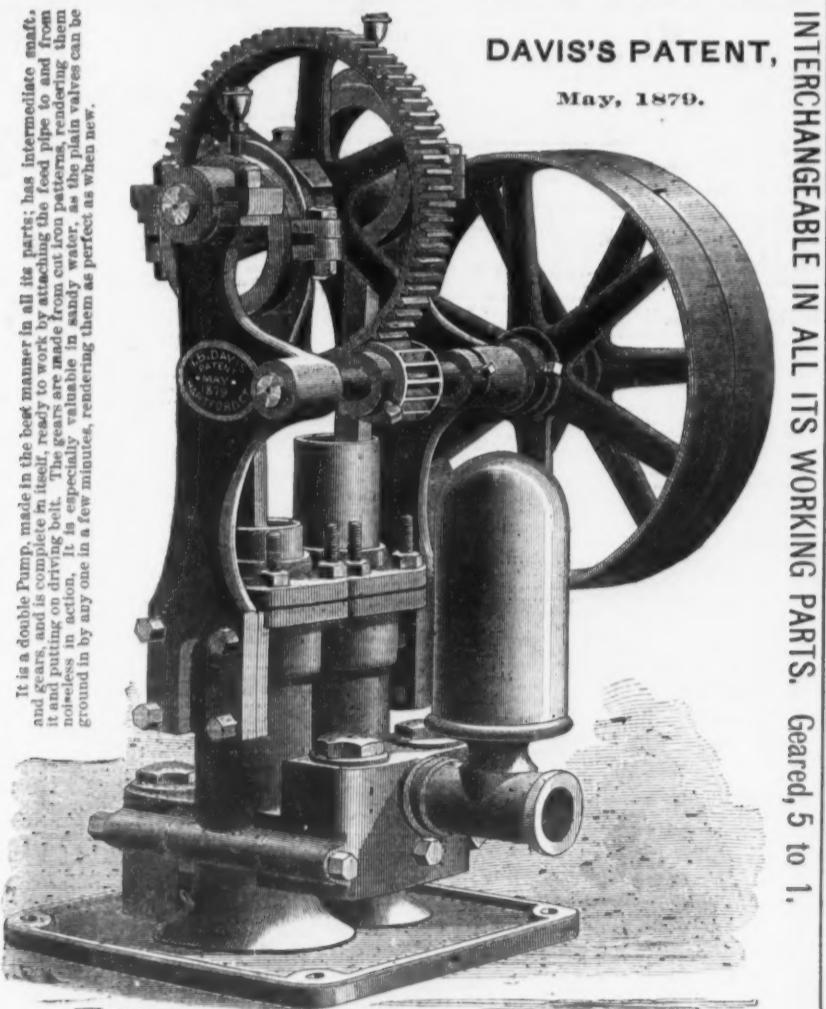


THE ECONOMIC PATENT BOILER FEED PUMP

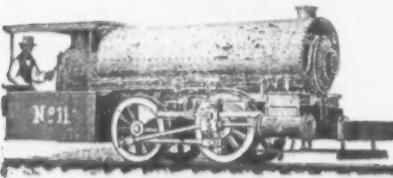
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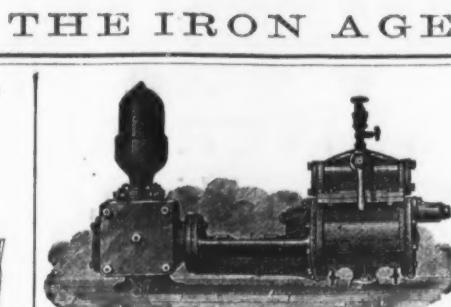
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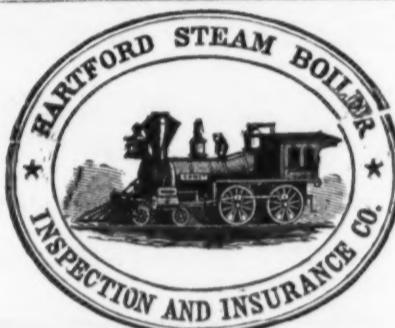
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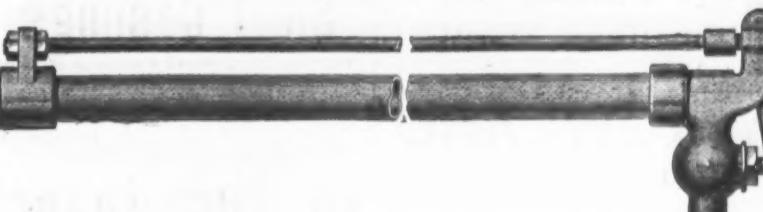
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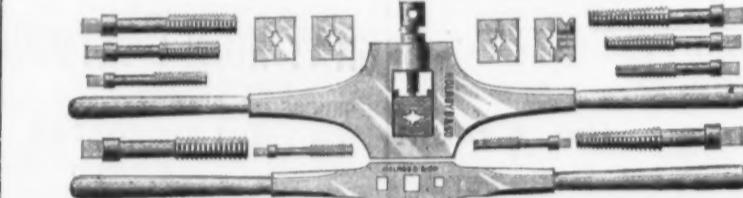
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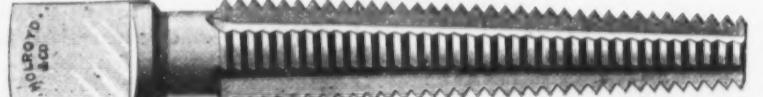
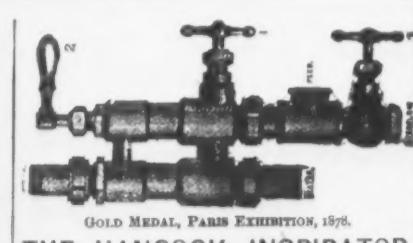
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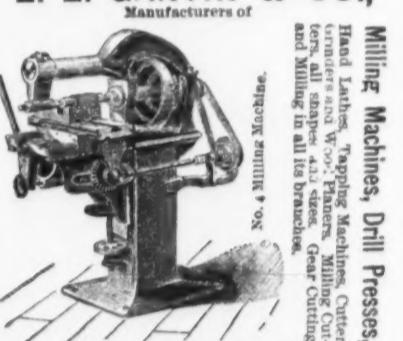
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